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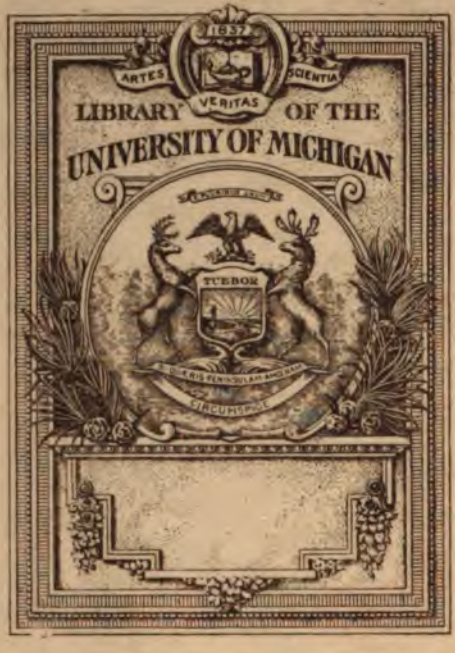

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THE GARY PUBLIC SCHOOLS

ORGANIZATION AND ADMINISTRATION

By
GEORGE D. STRAYER
AND
FRANK P. BACHMAN

GENERAL EDUCATION BOARD
61 Broadway New York
1918

ORGANIZATION AND ADMINISTRATION

THE GARY PUBLIC SCHOOLS

The results of the study of the Gary Public Schools, undertaken on the invitation of the Superintendent and the Board of Education of Gary, will be published in eight parts, as follows:

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THE GARY PUBLIC SCHOOLS

ORGANIZATION AND ADMINISTRATION

BY
GEORGE D. STRAYER
AND
FRANK P. BACHMAN

GENERAL EDUCATION BOARD
61 BROADWAY NEW YORK
1918

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INTRODUCTION

The Gary Plan

In the last few years both laymen and professional educators have engaged in a lively controversy as to the merits and defects, advantages and disadvantages of what has come to be called the Gary idea or the Gary plan. The rapidly increasing literature bearing on the subject is, however, deficient in details and too often partisan in tone. The present study was undertaken by the General Education Board at the request of the Gary school authorities for the purpose of presenting an accurate and comprehensive account of the Gary schools in their significant aspects.

In the several volumes in which the main features of the Gary schools are separately considered, the reader will observe that, after presenting facts, each of the authors discusses or—in technical phrase—attempts to evaluate the Gary plan from the angle of his particular interest. Facts were gathered in a patient, painstaking, and objective fashion; and those who want facts, and facts only, will, it is believed, find them in the descriptive and statistical portions of the respective studies. But the successive volumes will discuss principles, as well as

state facts. That is, the authors will not only describe the Gary schools in the frankest manner, as they found them, but they will also endeavor to interpret them in the light of the large educational movement of which they are part. An educational conception may be sound or unsound; any particular effort to embody an educational conception may be adequate or inadequate, effective or ineffective. The public is interested in knowing whether the Gary schools as now conducted are efficient or inefficient; the public is also interested in knowing whether the plan as such is sound or unsound. The present study tries to do justice to both points.

What is the Gary plan?

Perhaps, in the first instance, the essential features of the Gary plan can be made clear, if, instead of trying to tell what the Gary plan is, we tell what it is not. Except for its recent origin and the unusual situation as respects its foreign population, Gary resembles many other industrial centers that are to be found throughout the country. Now, had Gary provided itself with the type of school commonly found in other small industrial American towns, we should find there half a dozen or more square brick "soap-box" buildings, each accommodating a dozen classes pursuing the usual book studies, a playground, with little or no equipment, perhaps a basement room for manual training, a laboratory, and a cooking room for the girls. Had Gary played safe, thi is the sort of school and school equipment that it woul now possess. Provided with this conventional scho

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system, the town would have led a conventional school life—quiet, unoffending, and negatively happy—doing as many others do, doing it about as well as they do it and satisfied to do just that.

As contrasted with education of this meager type, the Gary plan is distinguished by two features, intimately connected with each other:

First—the enrichment and diversification of the curriculum;

Second—the administrative device that, for want of a better name, will be tentatively termed the duplicate school organization.

These two features must first be considered in general terms, if the reader is to understand the detailed description and discussion.

As to the curriculum and school activities. While the practice of education has in large part continued to follow traditional paths, the progressive literature of the subject has abounded in constructive suggestions of far-reaching practical significance. Social, political, and industrial changes have forced upon the school responsibilities formerly laid upon the home. Once the school had mainly to teach the elements of knowledge; now the school is charged with the physical, mental, and social training of the child. To meet these needs a changed and enriched curriculum, including community activities, facilities for recreation, shop work, and household arts, has been urged on the content side of school work; the transformation of school aims and discipline

on the basis of modern psychology, ethics, and social philosophy has been for similar reasons recommended on the side of attitude and method.

These things have been in the air. Every one of them has been tried and is being practised in some form or other, somewhere or other. In probably every large city in the country efforts have been made, especially in the more recent school plants, to develop some of the features above mentioned. There has been a distinct, unmistakable, and general trend toward making the school a place where children "live" as well as "learn." This movement did not originate at Gary; nor is Gary its only evidence. It is none the less true that perhaps nowhere else have the schools so deliberately and explicitly avowed this modern policy. The Gary schools are officially described as "work, study, and play" schools—schools, that is, that try to respond adequately to a many-sided responsibility; how far and with what success, the successive reports of the Gary survey will show.

It must not, however, be supposed that the enriched curriculum was applied in its present form at the outset or that it is equally well developed in all the Gary schools. Far from it. There has been a distinct and uneven process of development at Gary; sometimes, as subsequent chapters will show, such rapid and unstable development that our account may in certain respects be obsolete before it is printed. When the Emerson school was opened in 1909, the equipment in laboratories, shops, and museums, while doubtless superior to what

was offered by other towns of the Gary type, could have been matched by what was to be found in many of the better favored larger towns and cities at the same period. The gymnasium, for example, was not more than one third its present size; the industrial work was not unprecedented in kind or extent; the boys had woodwork, the girls cooking and sewing. But progress was rapid: painting and printing were added in 1911; the foundry, forge, and machine shop in 1913. The opportunities for girls were enlarged by the addition of the cafeteria in 1913. The auditorium reached its present extended use as recently as the school year 1913–14. The Froebel school, first occupied in the fall of 1912, started with facilities similar to those previously introduced piecemeal into the Emerson.

These facilities, covering in their development a period of years, represent the effort to create an elementary school more nearly adequate to the needs of modern urban life. The curriculum is enriched by various activities in the fields of industry, science, and recreation. Questions as to the efficiency with which these varied activities have been administered will be discussed by the various contributors to the present study. Meanwhile, it is perhaps only fair to point out that the modern movement calls not only for additions to, but eliminations from, the curriculum and for a critical attitude toward the products of classroom teaching. How far, on the academic side, the Gary schools reflect this aspect of the modern movement will also presently appear.

The administrative device—the "duplicate" organization, noted above as the second characteristic feature of the Gary plan—stands on a somewhat different footing, as the following considerations make plain.

Once more, Mr. Wirt was not the inventor of the intensive use of school buildings, though he was among the first—if not the very first—to perceive the purely educational advantage to which the situation could be turned. The rapidity with which American cities have grown has created a difficult problem for school administrators—the problem of providing space and instruction for children who increase in number faster than buildings are constructed. The problem has been handled in various ways. In one place, the regular school day has been shortened and two different sets of children attending at different hours have been taught daily in one building and by one group of teachers. Elsewhere, as in certain high schools, a complete double session has been conducted. The use of one set of schoolrooms for more than one set of children each day did not therefore originate at Gary.

Another point needs to be considered before we discuss the so-called duplicate feature of the Gary plan. In American colleges, subjects have commonly been taught by specialists, not by class teachers. The work is "departmentalized"—to use the technical term. There is a teacher of Latin, a teacher of mathematics, a teacher of physics, who together instruct every class—not a separate teacher of each class in all subjects. Latterly,

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departmentalization has spread from the college into the high school, until nowadays well organized high schools and the upper grades of elementary schools are quite generally "departmentalized," i.e., organized with special teachers for the several subjects, rather than with one teacher for each grade.

Out of these two elements, Gary has evolved an administrative device, the so-called duplicate school, which, from the standpoint of its present educational significance, does indeed represent a definite innovation.

For the sake of clearness, it will be well to explain the theory of the duplicate school by a simplified imaginary example:

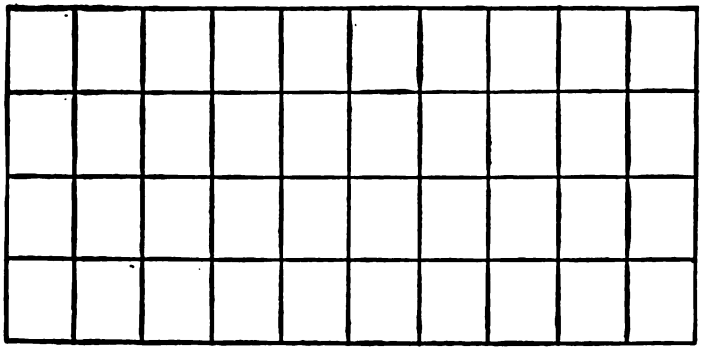
Let us suppose that elementary school facilities have to be provided for, say, 1,600 children. If each class is to contain a maximum of 40 children, a schoolhouse of 40 rooms would formerly have been built, with perhaps a few additional rooms, little used, for special activities; except during the recess (12 to 1:30) each recitation room would be in practically continuous use in the old-line subjects from 9 to 3:30, when school is adjourned till next morning. A school plant of this kind may be represented by Figure I, each square representing a schoolroom.

The "duplicate" school proposes a different solution. Instead of providing 40 classrooms for 40 classes, it requires 20 classrooms, capable of holding 800 children; and further, playgrounds, laboratories, shops, gardens, gymnasium, and auditorium, also capable of holding

800 children. If, now, 800 children use the classrooms while 800 are using the other facilities, morning and afternoon, the entire plant accommodates 1,600 pupils throughout the school day; and the curriculum is greatly enriched, since, without taking away anything from their classroom work, they are getting other branches also. A school thus equipped and organized may be represented

FIGURE I
REPRESENTS OLD-FASHIONED SCHOOLHOUSE

40 rooms for 40 classes, of 40 children each, i. e., facilities for the academic instruction of 1,600 children. A school yard and an extra room or two, little used, for special activities, are also usually found.

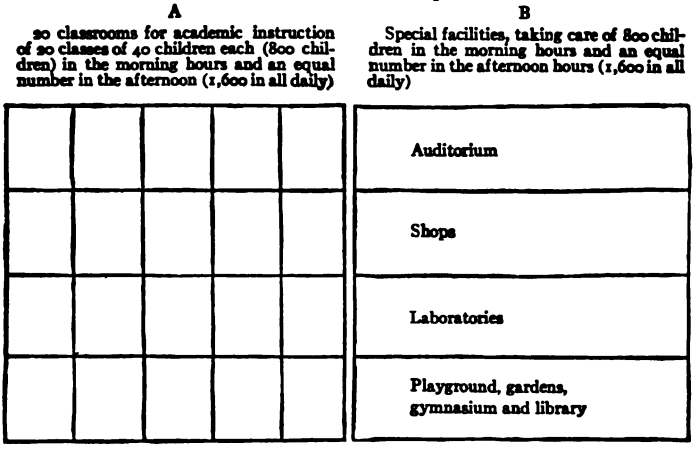


by Figure II, in which A represents 20 classes taking care of 40 children each (800 children), and B represents special facilities taking care of 800 children. As A and B are in simultaneous operation, 1,600 children are cared for.

This method of visualizing the "duplicate" school serves to correct a common misconception. The plan aims to intensify the use of schoolrooms; yet it would be

incorrect to say that 20 classrooms, instead of 40, as under the old plan, accommodate 1,600 children. For while the number of classrooms has been reduced from 40 to 20, special facilities of equal capacity have been added in the form of auditorium, shops, playground, etc. The 20 classrooms apparently saved

FIGURE II
REPRESENTS THE GARY EQUIPMENT



have been replaced by special facilities of one kind or another. The so-called duplicate organization and the longer school day make it possible to give larger facilities to twice as many children as the classrooms alone would accommodate. The duplicate school, as developed at Gary, is not therefore a device to relieve congestion or to reduce expense, but the natural result of efforts to provide a richer school life for all children.

The enriched curriculum and the duplicate organization support each other. The social situation requires a scheme of education fairly adequate to the entire scope of the child's activities and possibilities; this cannot be achieved without a longer school day and a more varied school equipment. The duplicate school endeavors to give the longer day, the richer curriculum, and the more varied activities with the lowest possible investment in, and the most intensive use of, the school plant. The so-called duplicate school is thus a single school with two different types of facilities in more or less constant and simultaneous operation, morning and afternoon.

Such is the Gary plan in conception. What about the execution? Is it realized at Gary? Does it work? What is involved as respects space, investment, etc., when ordinary classrooms are replaced by shops, playgrounds, and laboratories? Can a given equipment in the way of auditorium, shops, etc., handle precisely the same number of children accommodated in the classrooms without doing violence to their educational needs on the one hand, and without waste through temporary disuse of the special facilities, on the other? To what extent has Gary modified or reorganized on modern lines the treatment of the common classroom subjects? How efficient is instruction in the usual academic studies as well as in the newer or so-called modern subjects and activities? Is the plan economical in the sense that equal educational advantages cannot be procured by

any other scheme except at greater cost? These and other questions as to the execution of the Gary plan are, as far as data were obtainable, discussed in the separate volumes making up the present survey.

The concrete questions above mentioned do not, however, exhaust the educational values of a given school situation. From every school system there come imponderable products, bad as well as good. Aside from all else, many observers of the Gary schools report one such imponderable in the form of a spiritual something which can hardly be included in a study of administration and eludes the testing of classroom work. These observers have no way of knowing whether Gary school costs are high or low; whether the pupils spell and add as well as children do elsewhere; but, however these things may be, they usually describe the pupils as characterized by self-possession, resourcefulness, and happiness to an unusual degree. While different schools and indeed different parts of the same school vary in this respect, the members of the survey staff agree that, on the whole, there is a basis of fact for these observations. Gary is thus something more than a school organization characterized by the two main features above discussed.

The reason is not far to seek. Innovation is stimulating, just as conformity is deadening. Experiment is in this sense a thing wholesome in itself. Of course it must be held to strict accountability for results; and this study is the work of persons who, convinced of the necessity of educational progress, are at the same time

solicitous that the outcome be carefully observed. The fact that customary school procedure does not rest upon a scientific basis, does not willingly submit itself to thorough scrutiny, is no reason for exempting educational innovations from strict accountability. The very reverse is indeed true; for otherwise innovation may imperil or sacrifice essential educational values, without actually knowing whether or not it has achieved definite values of its own. Faith in a new program does not absolve the reformer from a watchful and critical attitude toward results. Moreover, if the innovator formulates his purposes in definite terms and measures his results in the light of his professed aims, the conservative cannot permanently escape the same process. Gary, like all other educational experiments, must be held accountable in this fashion. Subject however to such accountability, the breaking of the conventional school framework, the introduction of new subject matter or equipment, even administrative reorganization, at Gary as elsewhere, tend to favor a fresher, more vigorous interest and spirit. Defects will in the following pages be pointed out in the Gary schools—defects of organization, of administration, of instruction. But there is for the reasons just suggested something in the Gary schools over and above the Gary plan. Problems abound, as in every living and developing situation. But the problems are the problems of life, and, as such, are in the long run perhaps more hopeful than the relatively smooth functioning of a stationary school system. Thus, not-

withstanding the defects and shortcomings which this study will candidly point out, the experiment at Gary rightly observed and interpreted is both interesting and stimulating.

ORGANIZATION AND ADMINISTRATION

I. PRESENT DAY PROBLEMS

POPULAR interest in Gary's educational experiment arises in large measure from the effort at Gary to deal with some of the pressing problems of public education. It is well, therefore, before describing the organization and administration of the Gary schools to review briefly the main problems with which boards of education and superintendents are now confronted. The more important of these may be stated as follows:

(1) How may the elementary curriculum be modernized so as to provide adequately for:

(a) The intellectual, moral, social, and industrial demands of a democratic society?

(b) Individual differences in physical endowment, mental ability, interests, and vocational outlook?

(2) How may schools with modernized programs be organized so as to procure a maximum of teaching efficiency?

(3) Can schools be provided with the buildings, the facilities, and the teachers required by a modern program and be maintained with such funds as an American municipality will furnish?

Let us consider briefly the situation in respect to each of these problems.

MODERNIZING THE CURRICULUM

At bottom, the problems above mentioned revolve about modernization of the school program. A lively discussion is in progress among both teachers and laymen on this subject. Such terms as "a modern school," "a modern curriculum" are in common use. It is important to point out, however, that these conceptions have not yet been reduced to definite and generally accepted form. The goal which progressive educators have in mind may perhaps be indicated by Professor Hanus's characterization of the modern school:

"The education demanded by a democratic society to-day is an education that prepares a youth to overcome the inevitable difficulties that stand in the way of his material and spiritual advancement; an education that, from the beginning, promotes his normal physical development through the most salutary environment and appropriate physical training; that opens his mind and lets the world in through every natural power of observation and assimilation; that cultivates hand-power as well as head-power; that inculcates the appreciation of beauty in nature and in art, and insists on the performance of duty to self and to others; an education that in youth and early manhood, while continuing the work already done, enables the youth to discover his own powers and limitations, and that impels him through oft-repeated intel-

Emerson School Building

lectual conquests or other forms of productive effort to look forward to a life of habitual achievement with his head or his hands, or both; that enables him to analyze for himself the intellectual, economic, and political problems of his time, and that gives the insight, the interest, and the power to deal with them as successfully as possible for his own advancement and for social service: and, finally, that causes him to realize that the only way to win and to retain the prizes of life, namely, wealth, culture, leisure, honor, is an ever-increasing usefulness, and thus makes him feel that a life without growth and without service is not worth living."[1]

The execution of any such scheme calls for adequate facilities and organization—a new and different type of plant, a revised program, a differentiated corps of teachers, a changed spirit in instruction. In all these respects progress has been made. Communities able to afford the necessary expenditure have begun to construct modern school buildings and to reconstruct buildings already in use, so as to provide more or less satisfactory facilities in the way of gymnasiums, swimming pools, shops, and laboratories. But progress has been very uneven. No city has as yet executed a consistent policy. Many large cities still offer little beyond the traditional book studies. Not infrequently a period or two a week for girls in cooking and sewing, and an equal amount of time for boys in manual training in the two or three

[1]Hanus: A Modern School (pp. 3-4).

upper grades of the elementary school, represent the total departure from the meager traditional scheme.

The modern viewpoint calls, however, for adaptation as well as enrichment. The more liberal curriculum needs to be adjusted to the varying needs of children who differ in capacity. Some progress—also uneven, to be sure—can be reported in this matter. Most of our larger cities now have separate classes and special programs for the mentally backward, for the blind, the deaf, and for children suffering with tuberculosis. Many cities provide differentiated courses in the upper grades, and in large schools, when there are a number of classes of the same grade, children are placed in the group in which they can do their best work. Nevertheless, statistics of elimination and retardation make clear that the schools have not yet adequately met the problem of providing programs adapted to wide differences in physical endowment, mental capacity, and vocational destination.

Again, the modern school, in the sense in which Professor Hanus uses the term, does something more than teach and train. It aims to concentrate and localize the forces and agencies which make for child welfare. It furnishes medical inspection, and, when necessary, medical treatment; dental clinics, with free service for children whose parents cannot afford to pay; and play and recreation under school supervision. These are integral parts of a program which seeks to provide opportunity not simply to master the tools of learning, but also to place children in contact with the world and the

society in which they live and to make of them vigorous and capable boys and girls on the physical, social, and moral side as well as the intellectual.

INCREASING THE EFFICIENCY OF TEACHERS

Much has also been accomplished in developing better teachers. More has been required of those entering the profession, and a more efficient type of supervision has been generally introduced. Moreover, administrators are realizing that expert teaching cannot be expected from a single teacher in from eight to fifteen subjects. In many cities the seventh and eighth grades, and in some the sixth and even the fifth, have been organized so as to give to each instructor one or two subjects, instead of asking him to cover the whole field. But administrative officers hesitate to carry the departmental idea into the lower grades. Nevertheless, the problem must be faced if the elementary program is to be completely modernized, and experiments in this direction are worthy of careful study.

FINANCING THE SCHOOLS

The adequate financing of public education on this broader basis is a difficult undertaking. Cities are in debt for school buildings and for other public improvements to the limit permitted by law, and in some cases almost to the point of bankruptcy. The demand for a modern curriculum, involving large additions to buildings and grounds, is frequently met with the objection

that the city cannot afford to make the required investment—a forcible argument in a community, already bonded to the limit, which finds itself in urgent need of better streets, better fire protection, more adequate police, larger and more far reaching provision for public health. Any proposal, therefore, which promises to make a dollar buy more deserves serious consideration.

The Gary schools are of more than local interest because they have tried to deal with these problems. They have made certain experiments looking to the enrichment and differentiation of the curriculum; certain innovations in the organization of the teaching staff; and they are trying to finance their enlarged facilities with funds raised by taxation. What they have done in the way of organization, administration, and finance cannot, however, be understood except in the light of the program of studies offered. The central problem is the problem of the curriculum, for on the educational opportunities thus offered depend the facilities that must be provided, the type of organization needed to procure their effective and economical use, the quality and numbers of the teaching staff, and, finally, the amount of money that must needs be raised. To the Gary program of studies and to the way in which this program is organized and administered, our attention must, therefore, first be directed.

II. PROGRAM

OUR discussion of the Gary program of studies is confined to the elementary school, because the high school course is of conventional character.[1] The discussion is based on illustrations from the programs of particular schools. The nine schools composing the system vary in size from the West Gary school, with two teachers and 46 pupils, to the Froebel school, with 58 teachers and an enrollment of 2,087 children. The number of teachers, the enrollment, and the average daily attendance at each school for 1915–1916 were as follows:

SCHOOLS	NUMBER OF TEACHERS	TOTAL ENROLLMENT, 1915–1916	AVERAGE DAILY ATTENDANCE
Froebel.....	58	2,087	1,503
Emerson.....	33	967	742
Jefferson.....	20	1,011	728
Beveridge.....	14	683	520
Glen Park....	8	315	224
24th Avenue...	7	347	254
Ambridge.....	3	146	92
Clarke.....	2	52	39
West Gary....	2	46	30
Total.....	147	5,654	4,132

[1]For discussion of the high school program, see The Gary Public Schools: A General Account, Ch. V.

TYPES OF WORK PROVIDED

The elementary program of these schools provides for each class, as a rule, four distinct types of instruction:

1. Academic work—the traditional school subjects—including reading, spelling, grammar, writing, arithmetic, geography, and history.

2. Special work, including handwork, drawing, science, cooking, sewing, manual training, forge, foundry, print shop, etc.

3. Auditorium, including singing, music on the phonograph, or children's performances on musical instruments, moving pictures, dramatics, individual or class exercises, etc.

4. Physical education and play, including gymnastic exercises, and play in the playroom, on playgrounds or athletic fields.

Consider, for example, the schedule of a primary grade at the Emerson school in the spring term, 1915–1916:

8:15– 9:15	Language and numbers (academic)
9:15–10:15	Handwork and nature study (special)
10:15–11:15	Play and physical training
11:15–12:15	Luncheon
12:15– 1:15	Handwork and nature study (special)
1:15– 2:15	Language and numbers (academic)
2:15– 3:15	Auditorium
3:15– 4:15	Play and physical training

This class, it will be observed, has daily two hours of academic work, 8:15 and 1:15; two hours of special work,

9:15 and 12:15; one hour of auditorium, 2:15; and two hours of play and physical training, 10:15 and 3:15, making in all a seven hour instruction day for the children, with an additional hour for luncheon.

The schedule of a sixth grade Emerson class illustrates the same point:

8:15– 9:15	Auditorium
9:15–10:15	Play and physical training
10:15–11:15	Mechanical drawing (boys)
	Teachers' assistants (girls) (special)
11:15–12:15	Mechanical drawing (girls)
	Teachers' assistants (boys) (special)
12:15– 1:15	Luncheon
1:15– 2:15	History and reading (academic)
2:15– 3:15	Arithmetic and geography (academic)
3:15– 4:15	Language (academic)

This class has three hours of academic work, two hours of special, and one hour each of auditorium and physical training and play.

The work of all classes in the Emerson school is similarly divided, as can be seen from Table I.[1] What is true of the types of work at Emerson school is true of the Froebel, Jefferson, and Beveridge schools, and almost equally true of the very smallest Gary schools,[2] as the following schedule of a primary class at the 24th Avenue school shows:

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[1] See page 13.

[2] For complete program of Emerson, see Table A of the Appendix; of Froebel, Table B; of Beveridge, Table C.

SCHOOL HOURS	SUBJECT	TEACHERS
8:45– 9:10	Music	B
9:10– 9:30	Literature	B
9:30–10:15	Play	C
10:15–10:45	Numbers	A
10:45–11:00	Phonics	A
11:00–11:30	Reading	A
11:30–11:45	Language	A
11:45– 1:00	Luncheon	
1:00– 1:45	Play	C
1:45– 2:05	Nature Study	B
2:05– 2:30	Drawing	B
2:30– 2:45	Writing	C
2:45– 3:00	Phonics	C
3:00– 3:30	Reading	C
3:30– 3:45	Spelling	C
3:45– 4:00	Language	C

The plant of the 24th Avenue school consists of five portables and an old one room rural building. There are two kindergarten and five first and second grade classes. Yet these primary classes go to three different teachers and have three separate types of work: (a) the usual primary academic instruction; (b) special work, including literature, music, drawing, and nature study; and (c) play.

VARIETY OF SPECIAL WORK AND CYCLES IN COURSES

The Gary program is further distinguished by the variety of special work provided. There are, for example, at Emerson and Froebel separate elementary courses in chemistry, physics, botany, and zoology.

Handwork Room—Jefferson School

TABLE I[1]

Types of Work of All Elementary Classes—Emerson School Spring Term, 1915–1916

School Hours	Classes Scheduled For:				
	Academic Work	Special Work[2]	Auditorium	Gymnasium Playground Play-room	Luncheon
8:15	5, 9	8, 11, 13, 7, 15	10, 12, 14	4, 6	
9:15	11, 7, 10	5, 9, 13, 15	4, 6, 8	12, 14	
10:15	6, 8, 9, 13, 15	7, 11, 12, 4, 10, 14		5	
11:15	4, 11	12, 6, 14, 10		7, 8	5, 9, 13, 15
12:15	9, 15, 13	5			4, 6, 7, 8, 10, 11, 12 14
1:15	5, 7, 11, 15, 12, 10, 14	8, 9		4, 6, 13	
2:15	6, 12, 8, 14, 10, 13	4	5, 7	9, 11, 15	
3:15	4, 12, 14	6	9, 11, 13, 15	5, 8, 7, 10	

[1]The numbers in Table I under Academic Work, Special Work, etc., and to the right of School Hours are the official numbers of the respective classes. To read the program of a given class, follow the class number from period to period and note the kind of work for which the class is scheduled.

The different elementary classes of Emerson for the spring term, 1915–1916, bore the following numbers:

4 Second grade, A and B sections
5 First grade, B and C sections
6 First grade, A, and second grade, C sections
7 Third grade, B and C sections
8 Third grade, A, and fourth grade, C sections
9 Fourth grade
10 Seventh grade, C section
11 Fifth grade
12 Sixth grade
13 Seventh grade
14 Eighth grade
15 Eighth grade

[2]Includes mechanical and freehand drawing, science, cooking, sewing, shop, helpers, teachers' assistants.

Emerson offers forge, foundry, machine shop, and printing. Froebel gives cabinet work, tinsmithing, plumbing, painting, printing, and shoe cobbling. In order that children may have opportunity to participate during their school careers in a number of such activities, special work in all Gary schools is broken up into short courses from ten weeks to a half year in length, and offered in cycles.

For example, class 7 of Froebel, first grade, had nature study the first two terms of 1915–1916, and handwork and drawing the last two terms. Class 41, sixth grade, took, for the first ten weeks of 1915–1916, either physics or botany; the second ten weeks the entire class served as teachers' assistants; the third ten weeks the boys took shop work and the girls sewing; and the fourth ten weeks the boys went to mechanical drawing and the girls to freehand drawing.

While there are thus frequent changes in special work, and consequent changes in class programs, all children of the lower grades—at least, in the larger schools—are supposed to have an equal and given amount of nature study, handwork, and freehand drawing, music, expression and application;[1] and all children of the upper grades, an equal and given amount of drawing, science, and shop work, although the kind of drawing and science studied, and the particular shop experiences, may and do differ with the pupil, the class, and the school.

[1]Expression is instruction in story telling, dramatization, and literature. Application includes special drill and the application of principles to practical every-day problems. For full discussion, see The Gary Public Schools: A General Account, Chapter V.

Occasionally classes fail to get in given grades the specified amount of special instruction, and now and then classes get double the normal allotment. Yet these class cycles in special work are operated, on the whole, with commendable regularity, so that the number of special activities in which each class participates and the amount of time each class gives to each special activity are surprisingly uniform. For example, at Jefferson all classes through the 3C grade had at some time during 1915–1916 music, expression, handwork or drawing, nature study, and application; and, with two exceptions, each class devoted the same amount of time respectively to these exercises. (Table II[1].) Similarly, all sixth and upper grade classes had nature study, drawing, cooking, sewing, and shop (girls taking cooking and sewing, and boys, shop), and the several classes were in these respective branches approximately the same length of time.[2] At the same time attention must be called to the fact that though classes are for the most part regularly scheduled for special work, individual pupils are not infrequently quite irregular in the amount of special work they receive. This apparent inconsistency arises from the habit of allowing individuals to leave the class to which they properly belong for all sorts of reasons—some doubtless good, some undoubtedly questionable.[3]

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[1] See page 16.

[2] For regularity of changes at Froebel, see Appendix, Table D.

[3] This point is more fully explained on pages 103-107.

TABLE II

SPECIAL WORK OF ALL JEFFERSON CLASSES DURING 1915–1916 AND THE NUMBER OF HOURS FOR WHICH EACH ACTIVITY WAS SCHEDULED

CLASS NUMBER	GRADE IN			NUMBER OF HOURS CLASSES WERE SCHEDULED FOR:							
	SEPTEMBER	DECEMBER	MARCH	MUSIC	EXPRESSION	HANDWORK OR DRAWING	COOKING	SEWING	SHOP (Boys)	NATURE STUDY	APPLICATION
1	1C	1B	1B	50	50	100				100	100
2	1A	2C	1A	50	50	100				100	100
4	1C	1B	1A	50	50	100				100	100
5	1B	1A	2C	50	50	100				100	100
3	2C	2B	2A	50	50	50				100	100
7	2B	2A	3C	50	50	50				100	100
6	2A	3C	3B	50	50	50	50	50	100	50	100
8	3C	3B	3A	50	50	50	100		100	50	100
9	3B	3A	4C	50	50	50	50	50	100	50	100
12	3A	4C	4B	50	50	50	100		100	50	100
12	4C	4B	4A	50	50	50	100		100	50	100
11	4B	4A	5C	25	25	150	50	50	100	50	50
10	4A	5C	5B	50	50	50	50	50	100	50	100
10	5C	5B	5A	50	50	50	50	50	100	50	100
15	5B	5A	5A	25	25		50	50	100	50	
13	5A—6C	5A—6C	6C			50	100		100	50	
16	6B	6A	7C			50	100		100	50	
17	6A	6A	7C			50		100	100	50	
17	7A	7A	7A			50		100	100	50	
14	7C	7B	7A			50	100		100	50	
18	8C	8B	8A			50		100	100	50	

DIVISION OF TIME

In the seven hour day of the larger schools, the approximate time allotment to the four different types of work provided by the Gary program is as follows: to academic work, 120 to 180 minutes; to special work, 120 minutes; to auditorium, 60 minutes; and to physical training and play, 60 to 120 minutes. Although the actual allotments vary with the term, the school, the grade, and at times the individual pupil, it is intended that physical training and play should be stressed in the lower grades, and academic work in the higher. Accordingly, 120 minutes are the usual assignment in the first classes both to academic work and to physical training and play, whereas in classes for older children academic work receives 180 minutes and physical training and play 60 minutes. The division of time, spring term 1915–1916, for the elementary classes of Emerson is shown in Table III, on the following page.[1]

When the seven hour pupil instruction day is so divided, some parts of the Gary program receive unusual emphasis. A comparison between the time allotted to each subject at Gary and to the same subjects in fifty representative cities of the country shows where unusual emphasis falls. It will be noted from Table IV[2] that Gary gives slightly less time to the three R's than

[1] For the division of the day, spring term 1915–1916, for elementary classes at Froebel, see Appendix, Table E.

[2] See page 19.

TABLE III

DIVISION OF DAY AT EMERSON SCHOOL
SPRING TERM 1915–1916

CLASS NUMBERS AND GRADES	NUMBER OF CLASSES	NUMBER OF MINUTES SCHEDULED FOR:			
		ACADEMIC WORK	SPECIAL WORK[1]	AUDITORIUM	GYMNASIUM PLAYGROUND PLAYROOM
4, 2A-2B; 5, 1B-1C; 6, 1A-2C; 7, 3C-3B; 8, 3A-4C	5	120	120	60	120
9, 4th; 10, 7C; 11, 5th; 12, 6th; 13, 7th; 14, 8th; 15, 8th	7	180	120	60	60

[1]Includes mechanical and freehand drawing, science, cooking, sewing, shop, helpers, teachers' assistants.

the fifty cities in question. The total difference, however, amounts to only 118 hours, which is insignificant when scattered through eight school years. Gary also gives somewhat less time than conventional schools to music, geography, and history, but it should be borne in mind that geography and history exercises, sometimes with moving pictures and sometimes of a more traditional sort, are given as a part of the auditorium work, and that a portion of most auditorium periods is devoted to work in music, involving both the more formal exercises, chorus work, and the enjoyment of music as rendered by pupils and teachers or as reproduced on the victrola. The striking difference between Gary and the fifty

TABLE IV

Total Time Allotments of Gary and of Fifty Representative Cities[1]

SUBJECTS	AVERAGE NUMBER OF HOURS ALLOTTED IN GARY	AVERAGE NUMBER OF HOURS ALLOTTED IN 50 CITIES
The Three R's:		
Reading	1,323	1,280
Language	798	864
Spelling	496	482
Writing	329	388
Arithmetic	958	1,008
Total	3,904	4,022
The Fundamentals:		
The Three R's	3,904	4,022
Geography	238	539
History	339	496
Science	567	331
Total	5,048	5,388
Special Subjects:		
German	62	
Music	188	367
Auditorium	1,600	899[2]
Drawing and Shop	1,605	887
Physical Training and Play	2,697	927[3]
Total	6,152	3,080
Total	11,200	8,468

[1]For the basis of this table and methods of computation, see The Gary Public Schools: A General Account, Ch. V. On the part of Gary the schools taken into account are Emerson, Froebel, and Jefferson. The time allotments, both for Gary and the fifty cities, are for the entire elementary course.

[2]Includes time given to opening exercises and miscellaneous subjects.

[3]Includes time given to physical training and recess.

cities is Gary's emphasis on science, drawing and shop, auditorium, and physical training and play. Gary gives almost twice as much time to auditorium as is ordinarily devoted to opening exercises and miscellaneous matters combined, almost double the common allowance to drawing and shop, and almost treble the average allotment to physical training and recess,[1] resulting in a decided extension and enrichment of the elementary program.[2]

PROGRAMS OF OTHER CITIES

Where other systems[3] have followed the lead of Gary, their programs evidence the same general characteristics, and yet show interesting variations.

In each case the school day has been lengthened, but the added time varies from thirty minutes to as much as two hours.

All schedules provide academic work, special work, auditorium, and physical training and play. The time provisions for the academic studies follow conventional lines. Auditorium has its place in each program, but the use of the auditorium is not uniform. Kansas City, for example, has only two such exercises per week, and the length of the periods varies from forty to sixty minutes.

[1]Even in the smaller schools, which have a six hour pupil instruction day, these studies and activities receive more than the usual emphasis.

[2]For detailed discussion of the course of study, see The Gary Public Schools: A General Account, Ch. V.

[3]One of the authors visited in this investigation the following systems, and this discussion is limited to these: Kalamazoo, Mich., Passaic, N. J., New York, N. Y., Newark, N. J., and Kansas City, Mo.

Cooking Room—Emerson School

Probably the greatest difference is in the type of activities included under special work and in the provision for physical training and play. These vary with the facilities available and with the extent of departmentalization which those in charge of the schools consider feasible. There are also the widest differences in the number of cycles in special work and consequent class changes from room to room. To illustrate: In contrast with the specialized shops of Emerson and Froebel, School Number Twelve of Passaic, New Jersey, provides general rooms for all work in the industrial and household arts below the seventh grade. These general rooms are each furnished for three types of elementary instruction. The equipment consists of a simple assortment of utensils and dishes for cooking; hand machines for sewing; and for handwork and manual training, scissors, rules, sand trays, and benches. Each room has, besides, forty stools, and 280 boxes, for the materials of the pupils using the room.[1]

Despite these differences and variations, the several cities visited allot the conventional amount of time to the old line studies, and in addition give new emphasis to science, the household and industrial arts, and to physical education and play.

SUMMARY

The distinctive features of the Gary elementary program may therefore be summarized as follows:

[1]For the complete program of this school, see Table F of the Appendix.

1. The program presupposes a longer school day. The day for pupils in the larger schools is seven instruction hours, and in the smaller schools, six instruction hours, with an additional hour in both cases for luncheon.

2. The program provides four types of work: academic instruction, including reading, writing, arithmetic, geography, and history; special work, including music, expression, science, household and industrial arts, and drawing; auditorium; and physical training and play. The amount and variety of special work vary from school to school.

3. In order that children may participate in a variety of special activities, courses in special work are from ten weeks to a half year in length and are taken in cycles.

4. The school day is so apportioned among the four types of elementary instruction that the academic branches receive approximately the conventional amount of attention, and unusual emphasis is given to science, the industrial and household arts, auditorium, and physical training and play.

Thus, without disturbing the time allowance of the conventional studies, but by increasing the number of special activities and by emphasizing their importance, Gary enlarges the field of elementary education and puts the elementary school in position to render a fuller service at once to the community and to the child.

III. PLANT

AS WE shall now see, the building facilities provided at Gary have been determined to an unusual degree by the requirements of the school program.

THE EMERSON SCHOOL

Of the nine schools, Froebel and Emerson are the largest. Emerson is a modern building[1] of the kind usually found only in our largest cities, and contains the following service rooms:[2]

30 regular classrooms
7 special rooms adapted to laboratories or art studios
2 household arts rooms
2 industrial arts rooms
1 cabinet shop (a late addition)
12 small inside rooms (for toilets, offices, storage, and the like)
2 offices
1 auditorium
2 gymnasiums
1 swimming pool

[1]See illustration opposite page 4.

[2]This list does not include auxiliary rooms, such as locker rooms, closets, etc.

Although Emerson accommodates both an elementary school and a high school, it is essentially an elementary school building. As such, it embodies a number of unusual features. The original plan did not, however, include all of these. In fact, the requirements of a changing and developing program compelled repeated alterations and additions. Even now most of the special work is conducted in regular classrooms—that is, in rooms which a conventional system would employ for reading or arithmetic. To illustrate, the 30 regular classrooms serve the following purposes:

Kindergarten	1
Academic or regular instruction	10
Nature study and handwork	1
Physics	2
Music	1
Expression	1
Library (regular room)	1
Commercial work	2
Sewing	2
Machine shop	1
Printing shop	1
Superintendent's offices	2
Storerooms	2
Vacant	3
Total	30

Nevertheless, as suggested above, Emerson, as an elementary school building, has uncommon features, among

which are the seven special rooms, each well adapted to the particular purpose for which it is now employed:

Library (special room)	1
Chemistry	1
Fine arts	1
Mechanical drawing	1
Kindergarten	1
Zoology	1
Botany	1
Total	7

The auditorium is unusual in size. The main hall is 60 by 53 feet, with a capacity of 546; the stage is of corresponding size, 50 by 21 feet, and there is a balcony 50 by 32 feet, equipped with fireproof lantern booth and 218 opera chairs.

The present gymnasium facilities are likewise exceptional. The boys' gymnasium contains 3,400 square feet of floor space, and there are similar provisions for the girls. Each gymnasium has lockers, showers, and dressing rooms. In addition, there is an excellent swimming pool, 47 by 27 feet, of varying depths.

So much for the building. What now of the equipment? The kindergarten rooms are particularly attractive. They have the usual kindergarten materials, and are tastefully decorated with appropriate pictures and abundantly supplied with flowers and animal pets.

The regular elementary school rooms—that is, those in which the children receive their academic instruction—

are in striking contrast. These rooms are, to be sure, well lighted, well ventilated, with ceilings of good height, and of standard size. They are furnished with single seated, non-adjustable desks of two or three sizes, supplemented in the primary rooms by kindergarten chairs. They have the usual slate blackboards, teacher's desk, and small flat-top table of general utility. In either front corner stands an attractive case for the basic texts of the children using the room, for ample supplementary books, and for instructional supplies, but this is all. With few exceptions, the rooms themselves are devoid of decorative features.

Three reasons account for the bare appearance of the classrooms. Instruction at Gary is to a considerable extent departmentalized. Most of what the children do in handwork, nature study, science, and drawing, which might give life and color to the room, is kept in the special rooms, leaving the regular rooms with little that lends itself to display. On the other hand, the authorities have intentionally failed to purchase decorations for particular classrooms, centering their efforts on the halls, to the end of making these the museums and art centers of the school. Finally, the teachers have done next to nothing themselves. This is probably due partly to the fact that some have been in the school only a short time, and partly to the fact that regular teachers do not have rooms of their own as they do in conventional school systems.

Of the equipment for handwork, nature study,

music, and expression, there is only the furniture to note—for these classes, with the exception of music, occupy standard classrooms. The handwork room possesses specially designed single seated work desks;[1] a sand box and aquarium constitute the additional equipment for nature study. The music room contains a piano, phonograph, cases for music, music racks, and iron-base revolving chairs of special design and adult size. The expression room has full-sized movable chairs with arm rests. The library is furnished with low bookcases, placed along the side walls, and with the usual flat-top reading tables and library chairs.

How one judges the physics, chemistry, zoology, and botany laboratories, and the fine arts and mechanical drawing studios depends on whether they are regarded from the point of view of elementary or of high school facilities. As high school laboratories and studios they are comparable both in quarters—for, with the exception of physics, they occupy special rooms—and equipment with what is common to our good high schools. As elementary school laboratories and studios they are probably unequaled anywhere in the country. In fact, elementary pupils hardly require such elaborate facilities.

The household arts equipment is ample for simple courses in sewing and dressmaking, consisting of sewing machines, cutting tables, pressing boards, etc., but is scarcely sufficient for advanced high school instruction. This is equally true of the cooking equip-

[1]See illustration opposite page 12.

ment. High school and elementary school pupils use a single kitchen, which serves also the school's cafeteria. In only one respect is the equipment exceptional, and that is in the facilities for preparing food in commercial quantities.[1]

The industrial arts facilities can be appreciated best by listing the fixtures of the respective shops.

The machine shop, in a standard classroom, has three engine turning screw cutting lathes, one universal milling machine, one 24 inch shaper, one 27 inch vertical drill with power feed, one small vertical drill, hand feed, one emery tool grinder. All of these are equipped with individual electrical motor drives. A bench equipped with five vises runs along one side of the shop, and a cupboard for small tools occupies one wall.

The forge shop, in a special room, has five power blast hand forges, a pneumatic crank hammer, one combined power punch and shear, a bench equipped with three vises, an emery wheel, hand tools, and miscellaneous equipment.

The foundry, in a special room, has a 22 inch cupola with charging gallery affording storage for coke and iron, a crucible brass furnace, gas furnace for melting lead or other easily fusible metals, core oven, scales, core bench, electric motor and fan for cupola blast, about a score of small flasks and several of larger size, and kits of molders' tools.

The printing shop, in a standard classroom, has one job

[1]See illustration opposite page 29.

Boys' Playground—Emerson School

press 12 in. by 18 in., one job press 10 in. by 15 in., wire stitcher, lead cutter, imposing stone and frame, metal proof press, numbering machine, multiple power punch, vibrating roller, cutting machine, stock case, case stands, cut cabinet, type and cuts, and miscellaneous tools and equipment. The presses, wire stitcher, and power punch are supplied with individual motors.

The cabinet making and wood turning shops, the one in a special room and the other in one of the small inside rooms, were idle at the time the survey was made.

From the standpoint of the elementary school—and they are used chiefly by elementary pupils—these shops are unique in number and equipment.

Finally, the gymnasium apparatus is simple, but adequate. The girls' gymnasium has a piano and phonograph, but the boys' is without music. Each is furnished with climbing racks, wands, Indian clubs, basketball goals, etc. In addition, the boys' gymnasium has climbing ladders, mats, parallel bars, and bucks.

Emerson's facilities are, however, not all within its walls. The school has unusual provisions for outdoor work, play and recreation. The building stands on the south end of a level improved plot, 607 by 306 feet, with a lawn frontage of 306 by 71 feet. The entire rear portion of the site is given over to outside activities. Directly to the rear of the building on either side, a space 66 by 44 feet supplies a handball court, sand box, and wading pool. North of the drive, which intersects the lot east and west, and on the east, is the playground for

girls and smaller children, the park with its winding walks, ornamental shrubs, and the "zoo," together occupying an area 218 by 176 feet. The playground has swings, ladders, sliding bars, parallel bars, stationary bars, merry-go-rounds, teeter boards, etc. A much used tennis court occupies the center of the park, and along the walk to the left and west and at the rear are the animal houses of the "zoo." To the north of the park, covering a plot 118 by 100 feet, are the poultry yard and poultry houses.

On the left of the building, looking north, and across the drive is the main playground, 336 by 120 feet, designed especially for older boys.[1] Finally, on the extreme north and between the boys' playground on the left and the poultry yard on the right are the school gardens, 118 by 76 feet.

To complete the description, across the street, to the east, is the Emerson athletic field,[2] occupying one entire block, 607 by 286 feet in extent. This field is only partly developed, but when completed will comprise a running track, a football field, a baseball field, and coasting hill.

THE FROEBEL SCHOOL

Having described the Emerson school in detail, we may deal more briefly with the Froebel school, which is of the same general type.[3]

[1] See illustration opposite page 28.

[2] Owned by city, but operated by the Board of Education.

[3] See illustration opposite page 36.

Froebel contains practically the same number and same types of rooms:[1]

28 regular standard classrooms
2 nature study rooms
6 special rooms adapted to laboratories or art studios
2 household arts rooms
2 industrial arts rooms
2 small offices
4 small rooms for rest, offices, or storage
1 auditorium
2 gymnasiums
2 swimming pools

In comparison with Emerson, Froebel has only three structural features of interest: (1) two nature study rooms, constructed by adding observatories to two ground floor standard classrooms and installing demonstration tables; (2) a larger auditorium—the main hall fitted with 598 opera chairs, and the balcony with 235; and (3) an additional pool.

Froebel has undergone repeated alterations and changes. Yet, as in Emerson, rooms are employed for purposes for which they were not originally constructed. To illustrate, take the present use of the twenty-eight standard classrooms, which is as follows:

Kindergarten	1
Academic or regular instruction .	15
Handwork	2

[1]This list does not include auxiliary rooms, such as locker and dressing rooms, closets, small storage rooms, etc.

Music	2
Expression	1
Physics	2
Commercial work	1
Mechanical drawing	1
Plumbing	1
Printing	1
Office	1
Total	28

The similarity between Emerson and Froebel extends also to equipment, with the exception of the shops. The only shop common to both schools is the printing shop. Those peculiar to Froebel are the woodworking, sheet metal, plumbing, paint, and shoe shops, which are equipped as follows.

The woodworking shop, in a special room, has an equipment of mill tools, each supplied with individual electric motor, including band saw, circular saw, jointer, planer, mortising machine, swing cutting off saw; three long benches, thirteen individual woodworking benches, each supplied with vises and equipment of small tools; three speed lathes furnished with electric motors, a tool grinder, cupboards, and miscellaneous tools and equipment.

The sheet metal shop, in a special room, has one 36 inch heavy squaring shear, one No. 4 tinner's bench shear, one 36 inch adjustable bar folder, can top folder, 36 by 2 inch pipe forming rolls, 30 inch grooving machine, No. 3 steel cornice brake, No. 2 beading machine, small burring machine, large burring machine, small turner,

large turner, wiring machine, setting down machine, cornice maker's crimper, 2 inch double seamer, and an assortment of bench stakes and mandrels.

The plumbing shop, in a regular classroom, has a plumber's bench and three vises, stock rack, and miscellaneous tools and supplies.

The paint shop, in one of the small basement rooms, has paint, oil, brushes, and miscellaneous supplies.

The shoe shop, in one of the small basement rooms, has benches, cobbler's tools, leather, and other supplies.

In respect to outdoor facilities, Froebel is even more generously provided for than Emerson. For example, the building stands on a magnificent, level, developed site 575 by 820 feet, with a park frontage of 575 by 289 feet. Playgrounds cover an area of 575 by 100 feet, and there are two gardens instead of one as at Emerson, the elementary garden measuring 142 by 131 feet, and the high school garden 148 by 126 feet. Adjoining these grounds to the north is an athletic field 575 by 278 feet, which, although owned by the city, is under the control of the board of education and at the service of Froebel.[1]

To summarize all that has been said: Emerson and Froebel are excellent modern plants, having—at least for elementary school buildings—unusual laboratories and art studios, unusually large auditoriums, exceptional indoor facilities for physical education, and unique outdoor provisions for work, play, and recreation. Also,

[1]See illustration opposite page 44.

they are excellent examples of present day school architecture, with the usual provisions for household and industrial arts, but without special structural provisions for handwork and music.

THE JEFFERSON SCHOOL

Next to Emerson and Froebel, the best plant is Jefferson,[1] built by the Gary Land Company and afterward sold to the board of education. Although erected in 1907, Jefferson was of the type built twenty to twenty-five years ago to accommodate the conventional school program. The requirements of the Gary program necessitated additions and alterations, so that Jefferson is now a good example of a building remodeled so as to permit the introduction of some modern features. As remodeled, Jefferson provides the following facilities:

Regular classrooms		9
Kindergarten	1	
Academic instruction	6	
Handwork and drawing	1	
Music and expression	1	
Small classroom (23 x 20)		1
Nature study room		1
Cooking and sewing		1
Industrial arts		1
Mechanical drawing		1
Auditorium		1
Gymnasium		1
Offices		2

[1]See illustration opposite page 52.

These facilities are, however, not as adequate nor as ample as might appear from the above list. To be sure, the regular classrooms, although the lighting is not entirely satisfactory, are unusually spacious—33 by 27 feet, with cloak halls 27 by 7 feet—and some of them are attractively decorated. On the other hand, the nature study room is merely a regular classroom, with a partition running across ten feet from the rear to make an observatory and storage room, and yet it serves well the desired purpose. The auditorium, on the second floor, is 43 by 40 feet, fitted with 234 opera chairs, and has a stage 27 by 11 feet. Cooking and sewing share one of the good sized basement rooms, and although the room has been done over and specially equipped, it is neither well lighted nor well ventilated. The basement quarters of mechanical drawing and of industrial arts are even less desirable and should perhaps not be used for instruction. The gymnasium, occupying the remodeled attic, is inconveniently located and its use involves a certain fire hazard.

Jefferson also has outside facilities, although these are small in comparison with those of the two major plants; nevertheless, Jefferson has an attractive lawn frontage a school garden 80 by 70 feet, a playground for girls and smaller children, 127 by 124 feet, and a playground and athletic field for older boys, 255 by 126 feet.

THE GLEN PARK SCHOOL

The other parts of the Gary school plant are very much inferior to the three schools we have described. They are, indeed, distinctly inadequate. The best of these is

the Glen Park school, located in a community well established before the founding of Gary and annexed in 1912 with other outlying districts. The Glen Park plant comprises a new two story, six room brick structure, with a gymnasium addition, and three portables[1]; but even here, although the plant is ill adapted, there are evidences of effort to extend the curriculum and enrich school life.

The two upper rooms of the main structure, each 29 by 25 feet, with improvised cloak hall, 25 by 6 feet, are reserved for academic instruction; a kindergarten occupies one of the first floor rooms, 34 by 29 feet, and the other, also 34 by 29 feet, serves for classes in music, expression, and auditorium. The gymnasium, 44 by 18 feet, is so contrived that, when not in use, it provides the auditorium with a stage.

One of the two basement rooms, neither of which, owing to poor lighting and ventilation, is satisfactory, accommodates the cooking and sewing, and the other, the manual training. One portable is vacant, but used occasionally for physical training; a regular teacher occupies the second; and the third is given up to handwork, mechanical drawing, and nature study.

Since portables of practically one type are found at each of the remaining plants, a single description will answer for all. Each portable provides a classroom 25 by 31 feet, amply lighted from one side. The low, gabled roof is usually of tin, the ceiling, of sheet iron. While the floor is substantial, the side walls are

[1]See illustration opposite page 60.

Froebel School Building

frail, composed of upright wall posts, exposed on the inside and covered on the outside with thin weather boarding. A lean-to, six feet wide and generally extending across one entire end, provides an entrance hall and cloak room, and when there is only one outside door there is usually also a small storage room. Such school accommodations, though unattractive, answer fairly well as temporary quarters, and when heated with standard heaters, as is the rule at Gary, are reasonably comfortable. They serve various purposes, but, whether provided for regular academic instruction or special activities, they are furnished and equipped like corresponding rooms of the main buildings, although generally less well.

Though Glen Park is a small school, it has outside facilities not always equaled by the best plants of other cities. It occupies a site 254 by 203 feet. To the front of the building, on the south, are lawn plots, 63 by 50 feet and 97 by 79 feet, respectively; the school garden measures 97 by 61 feet; the poultry run, 57 by 9 feet; and there is a well equipped playground, 156 by 139 feet.

THE BEVERIDGE SCHOOL

The Beveridge school, in an old settlement on the southwest which was incorporated as a part of Gary in 1912, is even less adequate than the Glen Park school. The plant consists of a relatively new, but extremely poor, six room brick building, an old two story, two room frame structure, and five portables.[1]

[1] See illustration opposite page 68.

Efforts to modernize instruction are, however, as evident here as at Glen Park. Three of the first and second floor rooms of the brick building accommodate academic classes, the fourth is fitted out for handwork and drawing. The school cafeteria occupies one of the basement rooms, and manual training, the other.

The upper room of the old frame building (32 by 23 feet), fitted with the usual nonadjustable desks of mixed sizes, and heated by an ordinary coal stove surrounded by an improvised shield, serves for nature study, the nature study equipment consisting of two flat top tables, four small animal cages, an aquarium, a few well selected books, a number of good bird pictures, and a storage case. The lower room, likewise heated by an ordinary sheathed stove, is the school auditorium. The stage occupies 23 by 8 feet, leaving for the auditorium proper an area of only 24 by 23 feet, into which are crowded 98 opera chairs and frequently as many children.

Kindergartens occupy two of the portables, a third is used for advanced academic classes, and two have been ingeniously joined end on end to make a gymnasium.[1]

The outdoor facilities at Beveridge are likewise less liberal than at the schools we have described. Nevertheless, between the brick building and the frame structure there is a lawn plot 50 by 50 feet, the school garden covers an area of 168 by 20 feet, and there is play space aggregating 130 by 100 feet.

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[1]See illustration opposite page 76.

OTHER SCHOOLS

The Clarke school, in the extreme northwestern end of Gary, is a two room rural school. The building is of the traditional two room rural type, and the school differs mainly from similar schools elsewhere in the playground apparatus provided and in its gardens. The playgrounds are 131 by 82 feet and the garden 62 by 16 feet.

Of the remaining plants, Ambridge, 24th Avenue, and West Gary, there is little to report, for the building in each case consists of a group of portables. However, it is a notable fact that without exception there are provisions for outdoor work, play, and recreation. For example, Ambridge, in the northwest section of the city, is quartered in five portables.[1] The grounds, which belong to the Gary Land Company, are 200 by 150 feet, and, although undeveloped, supply a garden space 55 by 18 feet, and two playgrounds, one 70 by 50 and the other 150 by 70 feet, each provided with appropriate equipment.

The 24th Avenue school, midway between Froebel and Glen Park, occupies a site 140 by 120 feet, and consists of five portables and an old rural building, 30 by 20 feet, used for a playroom. Scattered about between the buildings are three play spaces: (a) 20 by 20 feet; (b) 50 by 26 feet; and (c) 72 by 50 feet. A vacant lot, 118 by 55 feet, which lies across the street next to the school, provides a school garden.[2]

[1]See illustration opposite page 84.

[2]See illustration opposite page 92.

West Gary, located at the extreme west of the city, occupies two portables, one of which is vacant part of the time. But even here there is an attempt at gardening, and both space and equipment are provided for play and recreation.

SUMMARY

The different parts of the Gary school plant thus represent extremes. The two modern buildings, Emerson and Froebel, the only schools of size planned and erected by the present school authorities, fairly realize the Gary ideal and are excellent. Remodeled Jefferson is not unlike the older buildings in many cities. Glen Park and Beveridge are entirely inadequate for their present programs and enrollment. The remaining plants, with the exception of Clarke, are confessedly makeshifts. Nevertheless, it is worthy of note that the ideal of an enriched curriculum and enriched school life permeates the system throughout, for all schools, even those in the least favored districts, have some facilities, however meager, for nature study, gardening, household and industrial arts, physical education, recreation and play. It is also worthy of note that there is a close relation between the plant provided and the program of studies offered. Finally it is to be said that two of the obviously unsatisfactory plants, Glen Park and Beveridge, were erected by small communities, since annexed to Gary. Gary has simply tried to make the best of them.

IV. ORGANIZATION

THE requirements of the program also determine in large measure the organization of the Gary schools.

DEPARTMENTAL INSTRUCTION

As stated before, administrators, even those dealing with conventional courses, realize that a teacher cannot teach well a dozen different studies. To meet the requirements of their programs, high schools generally departmentalize. A single instructor teaches one or at most two or three academic branches, and there is usually a teacher for each of the sciences, as well as separate teachers for drawing, music, the household arts, the industrial arts, and physical training. Frequently there is a similar division of work in the seventh and eighth grades of the elementary school, but this seldom goes lower.

Owing to the conventional character of their programs, the Gary high schools have, with the probable exception of science and shops, only the usual amount of departmentalization.

On the other hand, the amount of departmentalization in the seventh and eighth grades is uncommonly

large. The courses of these grades include reading, spelling, language, handwriting, arithmetic, geography, and history, besides freehand and mechanical drawing, auditorium, play and physical training, and, in the two largest schools, physics, chemistry, zoology and botany, cooking and sewing for girls, and from three to a half dozen specialized industrial activities for boys. Obviously, no single teacher can carry such a program, nor can a single room be appropriately equipped for all these branches. It is necessary either to be content with a less extended course of study, or to departmentalize, equip special rooms, and employ teachers with special training for particular fields. Gary chooses the latter alternative. Accordingly, in the two largest schools, seventh and eighth grade instruction is divided among something like thirteen teachers for girls and as many as seventeen for boys, approximately as follows:

Academic studies	3
Auditorium	1
Physical education	1
Science	4
Freehand drawing	1
Mechanical drawing	1
Cooking	1
Sewing	1
Industrial arts	3–6

In consequence, seventh and eighth grade pupils seldom have less than eight to ten different teachers during the

course of a single year. This, however, does not mean that when a child advances from the seventh to the eighth grade he comes under a new group of teachers. The same special teachers have classes in both grades, so that a child advancing from the lower to the higher may change only one or two instructors.

The opportunities offered in the two largest schools to fourth, fifth, and sixth grade pupils are practically the same as those offered to the seventh and eighth grades; the only real difference is in the level of the instruction. In consequence, there is no difference in the amount of departmentalization. The only exception worthy of note is this: Fourth to sixth grade pupils have as a rule only one or two academic instructors, whereas seventh and eighth grade pupils ordinarily have three. The total number of teachers that a class of fourth, fifth, or sixth grade pupils has in a single year is, therefore, seldom less than nine.

To meet the requirements of the primary program (grades 1 to 3) the work is divided, in the larger schools, approximately as follows:

Academic studies . . .	1	teacher
Auditorium	1	"
Physical education . .	1	"
Music	1	"
Expression	1	"
Application	1	"
Handwork and drawing .	1	"
Nature study	1	"

Primary pupils, therefore, instead of having a single teacher, as is the common practice, generally have, in the two larger schools, as many as eight different instructors in the course of a school year, although they may not have more than one or two additional new teachers until after they pass into the fourth grade.

Departmentalization extends, therefore, in the larger Gary schools—and in certain of the smaller ones, for that matter—throughout the grades. This permits an unusual amount of specialization among the elementary teachers. A regular grade teacher seldom teaches more than three of the old line studies and her work rarely ranges over more than two different grades. There are special teachers, for the first three years, in handwork and drawing, and in nature study. All of the sciences, as well as cooking, sewing, freehand and mechanical drawing, and all of the industrial arts have their specialists, with work extending upward from the fourth grade. Finally, there are instructors in music, in expression, and in play and physical training, whose work may and often does range from beginners to the senior high school class.

MOVEMENT OF CLASSES FROM ROOM TO ROOM

When a school is departmentalized, one of two things takes place: Either the pupils go from room to room for their instruction, or the teachers go from room to room to meet their several classes. Where the program is as highly specialized as in the larger Gary schools, and where so many special rooms and so much special equip-

Athletic Field—Froebel School

ment are required, pupils must circulate from instructor to instructor. For play and physical training they go to the gymnasium and playground, for physics, to the physics laboratory, for forge, to the forge shop. Accordingly, all classes in the two larger schools circulate from room to room.

To illustrate: Class 5, primary grade, Emerson, circulated during the spring term 1915–1916 as follows:

8:15	Room 210	Language and numbers
9:15	Room 312	Handwork and nature study
10:15	Gymnasium	Play and physical training
11:15	Home	Luncheon
12:15	Room 312	Handwork and nature study
1:15	Room 210	Language and numbers
2:15	Auditorium	Auditorium
3:15	Gymnasium	Play and physical training

This class occupied during the day four different places (Rooms 210, 312, auditorium, and gymnasium) and changed quarters at the end of each period throughout the day.

Similarly class 40, sixth grade, Froebel:

8:15	Auditorium	Auditorium
9:15	Gymnasium	Play and physical training
10:15	Room 120	Manual training
11:15	Room 120	Manual training
12:15	Home	Luncheon
1:15	Room 302	History and geography
2:15	Room 307	Mathematics
3:15	Room 310	English

This class occupied daily six different places; but two periods in succession were spent in one room (Room 120).

The movement from room to room of these two classes is representative of both Emerson and Froebel.[1] Few classes in these schools occupy less than four rooms daily and occasionally classes go to different rooms every period of the day.

A similar movement of classes takes place in college or in high school, and also commonly in the seventh and eighth grades of the elementary school. But it is a novelty in the primary and intermediate grades, where it is the inevitable result of departmentalization and the policy of keeping all facilities as far as possible in constant use.

Rotation of elementary classes involves complete abandonment of the idea that each class should have a home room where the children spend the greater part of the school day and where they do most, if not all, their school work. It involves also abandonment of the notion that each child should have a seat which he may regard as his own. In the most highly developed Gary schools, the only thing a child may call his own is the locker in which he stores his wraps and his books. What effect this shifting from room to room, this absence of a school home in the old sense and lack of a reserved seat, has on attendance, conduct, and study it is impossible at present to say. Obviously, much will depend on proper arrangements for caring for books and wraps, and

[1]See Tables A and B of the Appendix.

on whether class changes are conducted in an orderly manner.

SEQUENCE IN CLASS PROGRAM

In conventional elementary schools, offering a simple academic program, the teacher proceeds daily with her assigned class from study to study, from exercise to exercise. The order of the day's work for all classes is essentially the same: Opening exercises take place at 9:05; arithmetic comes at 9:20; reading, 9:50; etc. On the theory that children do their hard work best in the morning, the more difficult studies, such as reading and arithmetic, occupy the forenoon, and the less exacting, such as handwriting and music, the afternoon.

In a school having highly departmentalized instruction, the teacher gives successive lessons in the same study or studies; for example, she will give arithmetic to class 5 at 9:15; more advanced instruction in the same subject to class 6 at 10:15; and so on, throughout the day, to different classes. Her work is arranged just as is the work of the Latin or Greek teacher. Consequently, if teachers doing specialized work in special rooms, and with special equipment, are to be kept fully employed, the order of the day's work of the several classes must differ greatly. One class will have to begin the day with academic work and end it with physical training; another class will need to do just the opposite, starting with physical training and finishing with academic work. The programs for the spring term 1915–16 of four Emer-

son classes make the point clear. Their arrangement was as follows:

TABLE V

DIVERSITY OF SEQUENCE IN CLASS PROGRAMS

SCHOOL HOURS	CLASS 4 2D GRADE	CLASS 9 4TH GRADE	CLASS 12 6TH GRADE	CLASS 15 8TH GRADE
8:15	Physical training	Academic work	Auditorium	Special work
9:15	Auditorium	Special work	Physical training	Special work
10:15	Special work	Academic work	Special work	Academic work
11:15	Academic work	Luncheon	Special work	Luncheon
12:15	Luncheon	Academic work	Luncheon	Academic work
1:15	Physical training	Special work	Academic work	Academic work
2:15	Special work	Physical training	Academic work	Physical training
3:15	Academic work	Auditorium	Academic work	Auditorium

The great diversity in sequence is apparent. Class 4 begins the day with physical training, while class 9 begins with academic instruction, probably with reading or arithmetic. All the academic work of class 9 comes before 1:15, while that of class 12 is scheduled from 1:15 to 4:15. As suggested above, this diversity is not a matter of choice—it is an inevitable consequence of an enriched program and the policy of keeping all facilities in use as nearly as possible all the time. Unquestionably the order of work of many Gary classes con-

travenes conventional ideas and practice, particularly in those cases where play and physical training, auditorium, and shop consume the morning hours and where all academic work is placed in the last two or three periods of the long day.

The point under discussion is of serious importance. Is there sound objection to the diversified sequence of studies and activities characteristic of Gary? How does it affect the child's health, habits of work, and actual achievements? Do children who do their intellectual tasks in the morning hours fare better than those who do them in the afternoon? Unfortunately, the question cannot be answered on the basis of assured knowledge. Neither class testing nor observation warrants us in expressing a definite judgment, pro or con.

SIZE OF INSTRUCTION GROUPS

In conventional schools, having the usual academic program, with a single teacher instructing a class, it is difficult to recognize differences in the instructional requirements of the several studies. All classes or instruction groups are of approximately the same size, ranging from thirty-five to forty pupils. To be sure, in the primary grades, a teacher frequently divides a class for reading and number into two and sometimes three separate squads, while in the remainder of the program the class works as a single unit. Likewise in the upper grades, where cooking for girls and manual training for boys are offered, to meet the instructional require-

ments of these activities, both are scheduled for the same period in order that the girls, approximately half of the class, may go to the one while the boys report to the other.

When the school program is enriched or diversified the number of studies is increased and differences in instructional requirements are more clearly brought out. What is best for the academic branches is one thing, what is best for science and the household and industrial arts is another, what is best for the auditorium, for play and physical training, yet another. Departmentalization and rotation of classes, the inseparable complements of an extended and enriched curriculum, make possible the recognition of these differences.

Accordingly there are decided differences in the larger Gary schools as respects the size of the various instruction groups. The average size of academic classes is approximately thirty-six pupils. The upper grade classes in science, in household arts and in the industrial arts are only half as large as the academic instructional groups, and shop classes are frequently even smaller.

On the other hand, auditorium groups are seldom less than three times the size of academic groups and occasionally seven and eight times as large, as can be seen from Table VI.[1]

From the very purpose and nature of the auditorium, the groups can assuredly with safety be made larger than the groups in academic studies. But there is a limit to the number of children, particularly of young

[1]See page 51.

TABLE VI

AUDITORIUM GROUPS AT EMERSON AND FROEBEL
SPRING TERM, 1915–1916

	8:15 TO 9:15	9:15 TO 10:15	10:15 TO 11:15	11:15 TO 12:15	12:15 TO 1:15	1:15 TO 2:15	2:15 TO 3:15	3:15 TO 4:15
			EMERSON					
Number of classes	3	3	5			4	2	4
Number of pupils	101	123	157			125	85	156
Grade span	6A to 8A	1A to 4C	9 to 12			9 to 12	1C to 3B	4A to 8B
			FROEBEL					
Number of classes	7	9	7			5	8	8
Number of pupils	219	276	223			135	293	264
Grade span	4B to 6B	1A to 4C	6B to 11			6A to 10	1B to 3A	3C to 6B

children, whose attention can be held at any one time, and also to the range of grades that a single program can interest and entertain. Insistence on a fair degree of homogeneity in respect to age and maturity of the audience introduces a serious difficulty into program making which the Gary schools cannot be said to have fully solved.[1]

The instruction groups for play and physical training are also large, particularly at the Froebel school. (Table VII.[2])

However, these groups are not so large as they seem. Each group at Emerson has three teachers, exclusive of a supervisor, and each group at Froebel five, exclusive of the swimming master. Even so play and physical training groups are decidedly larger than academic groups. A single teacher can doubtless handle a larger number of children in free play than in academic studies. But, if formal physical training is to be vigorous and exacting and especially if due attention is to be given to the discovery of personal defects and to corrective exercises, the instruction groups should at least at certain times be even smaller than in academic work.[3]

HELPERS AND TEACHERS' ASSISTANTS

Up to this point, we have confined our discussion to those features of organization involved in the extension

[1]For full discussion of this question, as also of auditorium programs and management, see The Gary Public Schools: A General Account, Ch. XIII.

[2]See page 53.

[3]For full discussion of this point, see report on Physical Training and Play.

Jefferson School Building

TABLE VII

PLAY AND PHYSICAL TRAINING GROUPS AT EMERSON AND FROEBEL[1]
SPRING TERM, 1915–1916

	8:15 TO 9:15	9:15 TO 10:15	10:15 TO 11:15	11:15 TO 12:15	12:15 TO 1:15	1:15 TO 2:15	2:15 TO 3:15	3:15 TO 4:15
			EMERSON					
Number of classes	3	4	1	2		3	4	4
Number of pupils	110	136	45	83		120	163	156
Grade span	1A to 10	6 to 10	1C to 1B	3C to 4C		1A to 7A	4A to 9	1C to 7C
			FROEBEL					
Number of classes	12	9	11		2	12	10	18
Number of pupils	375	269	375		69	399	302	553
Grade span	1C to 12	4B to 8A	1B to 5A		3C to 3B	1C to 6C	3C to 9	1C to 12

[1]There are three physical training teachers at Emerson exclusive of a supervisor, and five at Froebel exclusive of the swimming master.

and enrichment of the curriculum. It remains to call attention to two other features of the Gary organization. First, high school pupils often take charge, usually under the direction of a teacher, of elementary school and even of high school classes, and both high school and upper grade pupils assist in the routine work of keeping records, handling supplies, placing work on the blackboard, correcting papers, and coaching individuals or small groups of children. Younger children are also assigned as observers or helpers to classes in which more mature pupils are working. The different grades represented in typical shop classes are shown in Table VIII.

Young children are placed with older children, as observers or helpers, on the theory that the situation thus created duplicates actual life conditions where children learn from observing or helping their parents or older

TABLE VIII

DIFFERENT GRADES IN SAME SHOP CLASS
FORGE—EMERSON SCHOOL
Last 13 Weeks, 1915–16

PERIOD	GRADE												TOTAL
	1	2	3	4	5	6	7	8	9	10	11	12	
8:15			4		4		3						11
9:15				3	1		3						7
10:15							6	1					7
11:15						6	5	1					12
12:15													—
1:15									1				1
2:15									1				1
3:15													—

TABLE VIII—*Continued*

SHEET METAL—FROEBEL SCHOOL
Last 10 Weeks, 1915–16

PERIOD	GRADE												TOTAL
	1	2	3	4	5	6	7	8	9	10	11	12	
8:15					1	2	2		1				6
9:15					2	1	2		3				8
10:15				1								1	2
11:15					4	2						4	10
12:15													—
1:15				2	3				1				6
2:15				4	4			2					10
3:15					3							1	4

persons. They are put in charge of classes or employed as assistants on the theory that there is something in school routine that can be best learned by doing it. These practices are to be viewed with considerable doubt. While turning over classes or even individual pupils to children without experience and special training may be more or less profitable to the pupil acting as teacher, it certainly does not operate to the advantage of the class and undermines standards of professional preparation. As to the value of observers or helpers and assistants to teachers in routine matters, opinions will differ. In our judgment school authorities should hesitate to adopt this feature of the Gary organization until carefully scrutinized experience has demonstrated its worth and limitations.[1]

[1]For fuller discussion of the practice in the shops, see report on Industrial Work, and in cooking, see report on Household Arts.

ELEMENTARY AND HIGH SCHOOL IN ONE ORGANIZATION

The second feature alluded to above is the intimate union of elementary school and high school in the same building under one management. There were at Gary at the time of the survey 547 high school pupils divided between the Emerson and the Froebel schools. Gary has thus in connection with two elementary schools two small high schools offering the traditional academic type of program. In consequence, there is no little duplication of equipment, of teachers, and loss of space. High school classes, almost always smaller than elementary classes, occupy standard elementary classrooms. High school teachers, seldom having full high school schedules, are assigned to elementary school classes. Equipment essential to high school work is either idle, or is made available to young children, even if not used to the best advantage by them. Among the compensating gains are the democratic spirit developed between elementary and high school pupils, the familiarity of elementary pupils with high school opportunities, and the knowledge which high school teachers acquire regarding elementary pupils, their methods of work, and their achievements.

This is the arrangement usually found in small towns where there are not enough high school pupils to warrant a separate plant. Under these limitations, the combination is unavoidable. But where there are ample students, as at Gary, the general practice is to separate the high school from the elementary school. There are

both economic and educational grounds for so doing and it is at least worth considering whether Gary would not gain by establishing a single modern high school with a plant and organization of its own.[1]

SUMMARY

Program, facilities, and organization thus hang together. In the development of the modern elementary school a solution must be found in which they function harmoniously. Gary offers one solution, adopting and freely using the devices above noted—departmentalization, class rotation, diversity of class schedules, and variation in size of instruction groups. In the foregoing pages, an effort has been made to present the resulting situation descriptively. As to the precise effects of these devices upon the pupils, it is impossible to speak at this time. Gary—and in this respect it resembles other school systems—has not yet studied itself. Its products, as reported in the successive parts of this report, are certainly not due entirely to the manner in which the schools are organized. Other factors undoubtedly also play their part—the qualifications and skill of the teachers, the kind of supervision, etc.

The authors of this report believe that the devices characteristic of the Gary organization are highly valuable, but they are at the same time inclined to think that they have probably been pushed too far; e.g., that departmentalization has been somewhat overdone, that

[1]For a fuller discussion of this point, see pages 82–83.

classes move too freely from room to room, that the program sequence of certain classes is more or less injudicious, and that instruction groups are now too small for economy, and now too large for effective teaching. In the long run, however, not opinion, but facts must decide the issues involved, and these facts can unquestionably be procured. For example, we have pointed out that class schedules are now so arranged that one class will play in the early morning and do its work in the early afternoon, while another class—or the same class another term—reverses the arrangement. Now, is there any reason why children should not play in the early hours of the morning and do their classroom work in the early hours of the afternoon? Gary assumes and believes that there is no objection. Is there? No one really knows. The question lends itself, however, to experimental inquiry. Given classes might readily be carried for a series of years alternating the former arrangement with the latter, while other classes are carried with the common order of studies. A series of graphs might show whether the level of class work is affected by the factor here under discussion. Other experiments could be devised for the purpose of determining the question. Of course, the settlement of issues in this way requires time and varied confirmation of results But our point is that, whereas innovation and experiment in organization are urgently needed, they must be held to strict accountability. Reforms are ultimately to be recommended only on the basis of their fruits.

V. USE OF PLANT

IN A preceding chapter we saw how the program of the Gary schools affected the plant and instructional facilities that have to be provided. It now remains to be seen how the program, with the type of organization above described, affects the number of pupils that a given building will accommodate.

In the course of this discussion we shall, for brevity and convenience, employ two terms which it is necessary first of all to explain. We shall speak of the "conventional" or "traditional" type of school, and the "semimodern" type of school. By conventional or traditional school we mean roughly to indicate the type of school that possesses a plant consisting of a given number of classrooms, suitable for academic instruction, a more or less inadequate school yard, and little or nothing else. Its program includes morning exercises, the three R's, geography and history, with music and perhaps a little drawing as incidentals. The classroom is the unit, each teacher carrying the entire program of her class. Most public elementary schools are of this type.

The plant of a semimodern school has regular classrooms, at least a cooking and a manual training room, and an auditorium, if not a gymnasium. In addition, there

may be one or two basement playrooms and more or less spacious grounds. The program includes morning exercises, the three R's, geography and history, music and drawing, cooking and manual training, with some science and physical training. Its organization is also of the classroom type, with the general exception of cooking and manual training, and now and then of subjects like handwriting, drawing, and music. When a class is at work in a special room, in the auditorium, or at play in the basement or on the school grounds, its home room or regular room is usually vacant. Our better elementary schools may be fairly called semimodern in the sense just indicated.

A modern school, if we may revert to Professor Hanus's description, would be distinguished by the reorganization of the common subjects, the variety of additional opportunities, and by a type of organization that takes full advantage of the enriched program and effectively uses the enlarged facilities.[1] The Gary schools, at their best, represent an attempt to advance from the semimodern toward the modern type—with what degree of success will appear from the different volumes of the survey.

The semimodern school differs from the conventional school to the extent that its plant facilities and educa-

[1]The inference should, however, not be drawn from this that a conventional or even a semimodern school can be completely modernized by the mere addition of new studies and activities to its program. This involves also a revaluation of the fundamentals and a thoroughgoing redetermination of their content.

Glen Park School Building and Portables

tional opportunities are more varied; both have the same type of organization. The Gary schools—Froebel and Emerson particularly—differ from the semimodern school partly because the Gary facilities are better, partly because the Gary program is richer, and partly because the organization is more flexible and adequate. For conventional and semimodern schools alike adhere to the classroom type, while Gary utilizes the departmental type described in the preceding chapter. In the present chapter we shall consider the relation between facilities, organization, and enrollment.

PUPIL CAPACITY AND PROGRAM REQUIREMENTS

It is not difficult to get full service out of a conventional plant. The building, consisting mainly of a number of regular classrooms, has its full complement of pupils when a standard sized class is assigned to each room. Even when a school possesses an auditorium, gymnasium, cooking and manual training rooms, these do not always add to the pupil capacity, for, under the conventional organization, when classes occupy special rooms for a period or two daily their regular or home rooms are ordinarily vacant. Hence, it is approximately correct to say that the maximum pupil capacity of a conventional or a semimodern school plant, under the old or classroom type of organization, is equal to the number of standard classrooms multiplied by the number of pupils in a full sized academic class. Assuming this to consist

of forty pupils, a plant of 40 regular classrooms would accommodate a maximum of 1,600 pupils.

Under the new or departmental type of organization, classes, as stated above, do not have home rooms, nor do children have reserved seats. They circulate throughout the day from room to room, sometimes going as a class, sometimes divided into sections, sometimes going as individuals independent of any class organization, while at other times the members of a number of classes are combined into a single instructional group. Hence, an elementary plant under the new type of organization accommodates its maximum number of pupils when every room, whether regular or special, auditorium or gymnasium, is in use every period of the school day, or as nearly thereto as possible. Thus the actual maximum pupil capacity of a given plant, or the maximum use that can be made of it under the departmental type of organization, depends upon the relation between the plant facilities and the requirements of the program followed.

An illustration will make this clear. The Froebel auditorium has a pupil capacity (main floor and balcony combined) of 873, or 20 classes, a total of 120 standard sized classes for a six hour instruction day. But educational considerations impose limitations on the size of auditorium groups. Besides, Froebel's estimated maximum capacity is 60 classes, and the proposed program calls for a single auditorium period for only 48 classes.[1] Therefore, irrespective of what the

[1]See Table G of the Appendix.

physical capacity of the Froebel auditorium may be, as limited by the requirements of the proposed program, its practical maximum capacity is only 48 classes daily. Should further consideration on educational grounds reduce the number of classes using the auditorium, the real capacity of the school would be correspondingly reduced.

This is precisely what occurs under the new type of organization with certain facilities when program requirements change. For example, at Emerson the cabinet and woodturning shops together have a daily capacity, on a six hour pupil instruction day basis, of 240 pupils, but the Emerson program no longer includes these activities. As it is not easy to use these shops for other instructional purposes, they are for the moment idle. In consequence, these two shops under the present program are not a part of the working capacity of Emerson; they simply do not count.

On the other hand, changes in program requirements may operate to augment facilities. For example, the Froebel program of 1915–1916 provided tinsmithing and plumbing. The tin shop, 50 x 24 feet, and the plumbing shop, a standard classroom, had a combined capacity for any one period of not more than 20 pupils, or a total daily capacity, on a six hour pupil instruction day, of 120 children. The Froebel program for 1916–1917 included neither tinsmithing nor plumbing. The tin shop was converted into a kindergarten and primary playroom, with a period capacity of 120 children, and the plumbing shop was restored to regular classroom use.

Thus, by a change in program requirements and consequent change in use, the actual period capacity of the rooms which these two shops occupied was raised from 20 to 160 or increased 700 per cent.

Illustrations might be multiplied showing how actual plant capacity is invariably conditioned by the requirements of the program, but enough have been cited to make two points clear: First, that it is a more difficult administrative task to get full use out of an elementary plant under the departmental than under the conventional type of organization; second, that it is impossible to estimate or determine the capacity of a given elementary plant under the new type of organization except on the basis of the requirements of a particular program.

PUPIL CAPACITY OF EMERSON AND FROEBEL

No single program has ever been followed long enough at either Emerson or Froebel to determine experimentally the respective maximum capacities of these two schools under the new type of organization, nor have other necessary conditions been favorable to such determination. At no time has the number of pupils within reach of Emerson been more than half enough to fill it,[1] and now for the first time are there sufficient pupils to make something like full use of Froebel.[2] It should, however, be borne in mind that in each instance these plants were erected to provide for a rapidly growing population and

[1]Total enrollment, 1915–16, 967.

[2]Total enrollment, 1915–16, 2,087.

not to accommodate a given number of children already at hand.

Of this much we are certain: With a conventional program, and under the traditional classroom organization, they could accommodate 40 classes of 40 pupils, or a total of 1,600 elementary children, and this, too, apart from any use whatsoever of auxiliary rooms, auditorium, or gymnasium.[1]

Under the new type of organization, and with a given program, the maximum capacity of Emerson and of Froebel is officially estimated at 60 classes, or 2,300 pupils, as follows:

6 kindergarten classes of 50 pupils each . . .	300
34 first to sixth grade classes of 40 pupils each . .	1,360
8 seventh and eighth grade classes of 35 pupils each	280
12 high school classes of 30 pupils each	360[2]

If the educational conditions imposed by the proposed program are accepted, for example, kindergarten classes of 50 pupils coming at different hours and having a three period day; all classes above the kindergarten limited to three hours of academic work; daily auditorium exercises of an hour, in groups of eight classes, for all grades above

[1]They each have in effect 30 standard classrooms, 6 unusually large rooms, and 4 rooms for the household and industrial arts, a total of 40 that might be employed for old line instruction. Admittedly, the 4 household and industrial arts rooms are not well suited to general class work, owing to poor lighting and ventilation, yet they are surely equal to many now used for regular work in conventional schools.

[2]See Table G of the Appendix, and Table XXV of the report on Costs.

the first; two hours of play and physical training for all lower grades and at least one for all others; eight classes circulating as observers and helpers; an eight hour plant instruction day, which necessitates a double luncheon period—if these and other educational and social conditions are accepted, it is evident that the Emerson and Froebel schools can, as the schedule shows, accommodate 60 classes, containing 2,300 pupils.[1] But if any one of the above named major conditions is changed, if, for example, kindergarten classes consist of 40 pupils on a five and a half hour day; or if for all classes above the fourth grade four hours of academic work are prescribed; if the auditorium is somewhat more highly systematized, and if helpers and observers are reduced or eliminated—if any one or several of these changes in program are made, the estimated capacity of these plants is altered and in each instance is lowered.

Although the particular schedule above mentioned shows that Froebel and Emerson can on the conditions there given each accommodate 2,300 pupils, it is important to note that 360 of these, or twelve classes, are of high school grade. The question arises: What is the elementary school capacity of these buildings under the new type of organization? Fortunately, in attempting to answer this question, the official estimate is based on number of classes and not directly on number of pupils. The proposed program requirements for high school pupils—three hours of academic

[1]See Table G of the Appendix.

instruction and four of special work—are the same as for elementary pupils.[1] There would therefore be little difference between the accommodations required by twelve high school and by twelve elementary classes. Consequently, Emerson and Froebel could, with the proposed program, each care for sixty elementary classes even more easily than for forty-eight elementary and twelve high school classes. In that event, owing to the difference between elementary and high school instructional needs, less highly specialized equipment would be required. There would also be a decided difference in the grade distribution of the sixty elementary classes. This would probably be for an ordinary elementary school approximately as follows:

6	kindergarten classes of 50 pupils each . . .	300
10	first grade classes of 40 pupils each	400
7	second grade classes of 40 pupils each . . .	280
7	third grade classes of 40 pupils each . . .	280
7	fourth grade classes of 40 pupils each . . .	280
7	fifth grade classes of 40 pupils each	280
6	sixth grade classes of 40 pupils each	240
5	seventh grade classes of 35 pupils each . . .	175
5	eighth grade classes of 35 pupils each . . .	175
	Total	2,410

When the elementary classes are thus kept at the same size as in the official estimate, and are in approximately the same relative proportion each to the

[1]See Table G of the Appendix.

other, it appears that Emerson and Froebel might accommodate 2,410 elementary pupils. But as the classes might easily distribute themselves differently, lowering this number by 100, no violence is done if the elementary school capacity, on the proposed program, of Emerson and Froebel is estimated at 60 classes and 2,300 pupils.[1]

USING ALL FACILITIES ALL THE TIME

Even when the pupil capacity of Emerson and Froebel is estimated at 60 classes and 2,300 pupils, all the facilities of these buildings are not actually in use during the entire plant instruction day of eight hours, or during the entire pupil instruction day of seven hours. For example, at Froebel—and the same would be true of Emerson—the kindergarten and primary playroom, the auditorium, the gymnasiums, the swimming pools, the zoology, botany, physics and chemistry laboratories, the freehand drawing room, the mechanical drawing room, the sewing room, the manual training shop, in short, practically all the special facilities, are idle two hours daily or a fourth of the plant instruction day, and, besides, a few regular classrooms are also vacant one or two periods.[2]

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[1]As we proceed with the analysis of this official estimate, it should not be forgotten that we are dealing only with an estimate; the proposed program has never been given in all its details, nor has Emerson or Froebel ever had any such number of pupils.

[2]See Table G of the Appendix.

Beveridge School Buildings

The reason is obvious. Regular or academic rooms can be kept going eight hours a day without requiring any academic teacher to teach more than six hours. There would merely have to be a few more teachers than there are classrooms. In the case of an eight hour plant instruction day, four academic teachers would use three different regular rooms, and in the case of a seven hour plant instruction day, seven teachers would use six rooms. But it is impossible under the new type of organization, or under any other, for that matter, to keep the highly specialized facilities of Emerson and Froebel (such as the botany, zoology, physics and chemistry laboratories, art studios, cooking and manual training rooms) employed more than six hours. Such facilities require specialized teachers, who at most cannot give more than six hours of instruction daily, and as a rule there is only one specialist of each kind in a school plant. When the specialists have done their daily round of hours, specialized facilities, seldom adapted to academic work, lie idle the remaining two hours of an eight hour plant instruction day, as there are no teachers available to use them.[1] Consequently six hours of daily use is probably all that can be gotten out of about a fourth of the facilities of a modern plant, varying with the requirements of the

[1]The Gary authorities have heretofore met this difficulty in part by employing in practical shops workmen instead of teachers. However, in the program under discussion there are no provisions for specialized shop work such as tinsmithing; manual training only is provided; shoe making and plumbing are purely incidental. See Table G of the Appendix.

program. This, however, does not necessarily apply to the gymnasium or to the auditorium, unless the plant instruction day is eight hours; for in a school of size there are a number of physical training teachers and usually more than one auditorium director; besides, these exercises are frequently in the hands of regular teachers. The natural thing, therefore, when operating a school under the departmental type of organization, would be to have a six hour instruction day for both building and pupils. Conditions would then be favorable to keeping all parts of the plant continuously employed, and the school, although under the new type of organization, would approximate the usual hours, beginning at 9 o'clock and continuing until 4 o'clock, with an hour for luncheon.

The particular program to which we referred calls, however, for a seven hour pupil instruction day. To provide this, in the face of the fact that highly specialized facilities can not be used for more than six hours, the plant instruction day is extended to eight hours; two luncheon periods are introduced, half of the children going to luncheon at each period; all special work is scheduled for the first three morning and the last three afternoon hours, leaving all special facilities idle during the two luncheon periods; and, finally, regular classrooms are used eight hours a day, being fully occupied during the two noon hours when only half of the student body is in the building at any one time.[1]

[1]See Table G of the Appendix.

This appears at first thought to be an ingenious arrangement to give pupils a seven hour instruction day, increasing the daily use of ordinary classrooms, without adding to the size of the plant. Analysis of the arrangement dissipates this impression.

In the first place, the pupil instruction day in a school operating under the new type of organization cannot be increased from six to seven hours without additional plant facilities. To illustrate: An instruction day of six hours would probably be divided three hours to academic work and three to special activities. The three hours allotted to special activities would probably be apportioned as follows:

(a) Kindergarten and first grades, two hours to play and one hour to other special activities;

(b) Second to the sixth grades, one hour to physical training, one hour to auditorium, and one hour to other special activities; and

(c) Seventh and eighth grades, a half hour to physical training, a half hour to auditorium, and two hours to other special activities.

Under these program conditions, the building requirements of a 60 class school are: (a) 30 standard classrooms, that is, enough to accommodate half of the school at one time in academic work; and (b) capacity in special facilities equivalent to the capacity of 30 standard classrooms, that is, a capacity in special facilities sufficient to accommodate the other half of the school at one time; or a total capacity equivalent to the capacity of

60 standard classrooms. The special facilities would be apportioned about as follows:

(a) Gymnasium capacity equivalent to $11\frac{5}{6}$ standard classrooms;

(b) Auditorium capacity equivalent to $6\frac{5}{6}$ standard classrooms; and

(c) Capacity in special facilities other than gymnasium and auditorium, such as nature study rooms, handwork rooms, cooking and manual training rooms, equivalent to $11\frac{4}{6}$ standard classrooms.

We are aware, of course, that school facilities cannot be provided in broken units; we however retain the fractions in order to keep the relations mathematically exact for purposes of comparison.[1]

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[1]The mathematics of these building requirements is simple. To accommodate 60 classes three hours daily in academic studies is equal to caring for 180 classes one hour. One standard classroom accommodates 6 classes for one hour daily, therefore to care for 180 classes will require 30 standard classrooms (180÷6).

To accommodate 16 kindergarten and first grade classes (the estimated number in a 60 class school—see page 67,) two hours daily in play, 34 second to sixth grade classes one hour daily in physical training, and 10 seventh and eighth grade classes a half hour daily is equal to 71 class instruction hours; hence, on a six hour building instruction day, would require gymnasium capacity equivalent to $11\frac{5}{6}$ standard classrooms (71÷6).

To accommodate 34 second to sixth grade classes (the estimated number in a 60 class school—see page 67) one hour daily in auditorium, and 10 seventh and eighth grade classes a half hour daily, is equal to 39 class instruction hours; hence, would require auditorium capacity equivalent to $6\frac{5}{6}$ standard classrooms (39÷6).

To accommodate in special activities other than gymnasium and audi-

It is important to note that "equivalent capacity in special facilities" does not mean the same number of special as of regular rooms. The number of special rooms will probably be less, for, as we have seen, several classes can be assembled at one time in a single auditorium or in a single gymnasium. Nor does it mean an equal amount of floor space. The space requirements of the several studies and activities differ. In some instances it takes more and in others less room to accommodate a standard sized class in a special activity than in an academic study. For example, cooking, manual training, and science, the instruction groups being ordinarily half of a full sized class, call for approximately double the space required by academic work, whereas auditorium requires only about a third as much. In a word, we are dealing with equivalent capacity when a standard sized class is the unit of comparison. Therefore, the above requirements mean that apart from the number of special rooms and amount of floor space thus needed, the special facilities together must be sufficient to accommodate at one time 30 standard sized classes.

On the other hand, when the pupil instruction day is seven hours for all grades, three hours would be allotted

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torium 16 kindergarten and first grade classes one hour daily, 34 second to sixth grade classes one hour daily, and 10 seventh and eighth grade classes two hours daily, is equal to 70 class instruction hours; hence, would require special facilities other than gymnasium and auditorium equivalent to the capacity of 11⅔ standard classrooms (70÷6).

to academic work and four hours to special activities. The time for special activities would be apportioned about as follows:

(a) Kindergarten and first grade, two hours to play and two hours to other special activities;

(b) Second to fourth grades, two hours to physical training, one hour to auditorium, and one hour to other special activities; and

(c) Fifth to eighth grades, one hour to physical training, one hour to auditorium, and two hours to other special activities.

Under these conditions, when the regular classrooms are used eight hours and special facilities six hours daily, the building requirements of a 60 class school are:

(a) $22\frac{1}{2}$ regular rooms ($60 \times 3 \div 8$); and

(b) Special facilities equivalent to the capacity of 40 standard classrooms, or a total capacity equivalent to the capacity of $62\frac{1}{2}$ ($40 + 22\frac{1}{2}$) standard classrooms.[1] The special facilities would be apportioned approximately as follows:

(a) Gymnasium capacity equivalent to $16\frac{1}{8}$ standard classrooms;

(b) Auditorium capacity equivalent to $7\frac{3}{8}$ standard classrooms; and

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[1]It is recognized that the instruction day for kindergarten and the first grade is usually shorter than for the other grades. Even Gary does not contemplate a seven hour instruction day for the kindergarten and first primary, and we hold to a seven hour instruction day for them in order to keep the comparison exact.

(c) Capacity in special facilities, other than gymnasium and auditorium, equivalent to 16⅔ standard classrooms.

The change from a six to a seven hour pupil instruction day in a school under the departmental type of organization, even though regular rooms are employed eight hours a day, requires, it will be noted, a net increase in plant facilities equivalent to the capacity of 2½ classrooms, or an increase of 4 per cent. But this may not be the most important difference. The number of regular rooms is reduced from 30 to 22½ and the special facilities are increased from the equivalent of 30 to the equivalent of 40 standard classrooms. This alters radically the character of the facilities to be provided and the interior structure of the plant, and raises the question of the relative cost of an equal capacity in regular and special rooms. Let this be as it may, it suffices for the present to note that, even in a plant operating under the new type of organization, lengthening the pupil instruction day from six to seven hours cannot be accomplished by a mere administrative arrangement which permits the use of regular rooms eight hours a day; to do it requires additional building facilities.

In the second place, the double luncheon period, the center of this administrative arrangement, is open to question. It brings the school into direct conflict with domestic arrangements and habits, as it interrupts and makes irregular the midday meal in families with children, who, belonging to different classes, go home to

luncheon at different hours. It is undesirable so to organize the school that it interferes unduly, as does the double luncheon period, with the convenience of the family; in our opinion such an arrangement can hardly be acceptable to the home, whatever school economies may be achieved thereby. Let us consider what these economies amount to.

Any use of regular rooms in excess of seven hours when the pupil instruction day is seven hours would seem to be a clear economic gain. But the use of regular rooms eight hours, when special facilities can only be employed six,[1] increases the proportion of special to regular rooms. For example, under the above program conditions, special facilities used six hours must be provided in sufficient quantity to care during four hours daily for all the classes that regular rooms used eight hours can accommodate three hours a day. Obviously, the greater the proportion of special facilities to regular rooms, the greater the proportion of the entire school plant idle after six hours of service. For this reason, when the pupil instruction day is seven hours, the net gain from an eight hour use of regular rooms and the double luncheon period comes to nothing.

[1]See pages 68–70. Moreover, it should be kept in mind that in order to use regular rooms eight hours a day it is necessary to schedule all special work the first three hours of the morning and the last three hours of the afternoon, thus leaving all special facilities idle the two midday periods. Otherwise, with half of the school at luncheon each of these periods, there would not be pupils available to fill the regular rooms. See Table G of the Appendix.

Gymnasium—Beveridge School. Two portables joined end on end

To illustrate: Under the above program conditions (page 73), when the pupil instruction day and the day for regular rooms are seven hours, the building requirements[1] of a 60 class school are:

(a) $25\frac{5}{7}$ regular rooms; and

(b) Special facilities equal to the capacity of $36\frac{9}{14}$ ordinary rooms, or a total capacity equivalent to $62\frac{5}{14}$ standard classrooms. The special facilities would be apportioned about as follows:

(a) Gymnasium capacity equivalent to $13\frac{6}{7}$ standard classrooms;

(b) Auditorium capacity equivalent to $6\frac{3}{7}$ standard classrooms; and

(c) Capacity in special facilities, other than gymnasium and auditorium, equivalent to $16\frac{1}{2}$ standard classrooms.[2]

Therefore, when, in a school operating under the new

[1]For method of computation, see note page 72. It should, however, be observed that when the plant instruction day is seven hours, gymnasium and auditorium may be used seven hours daily.

[2]To accommodate 16 kindergarten and first grade classes in other than gymnasium and auditorium two hours daily; 21 second to fourth grade classes one hour; and 23 fifth to eighth grade classes two hours, is equal to 99 class instruction hours. Hence, there will be required a capacity in special facilities other than gymnasium and auditorium equivalent to the capacity of $14\frac{1}{7}$ standard classrooms ($99 \div 7$). But such facilities cannot ordinarily be used in excess of six hours. Therefore, that there may be available each hour of the seven hour school day a capacity in special facilities other than auditorium and gymnasium equal to $14\frac{1}{7}$ standard classrooms, there must be provided a capacity equivalent to $16\frac{1}{2}$ standard classrooms, thus allowing for $\frac{1}{7}$ of such facilities being idle all the time.

type of organization and having a seven hour pupil instruction day, regular rooms are used seven instead of eight hours a day, the requirements of a 60 class school under given program conditions are reduced from a total capacity[1] equivalent to $62\frac{1}{2}$ to a capacity equivalent to $62\frac{5}{14}$ standard classrooms.[2] The reduction is probably even greater, for the double luncheon period and the eight hour use of ordinary rooms permit no use of special facilities for other purposes, as they are fully occupied six hours of the day and are ordinarily not needed during the two noon hours. In contrast, when regular rooms are in use seven hours, it is possible to make occasional use throughout the school day of some of the vacant special facilities for regular instruction, and this might easily add further to the economic advantage of the single luncheon period and seven hour day. Where different kinds of facilities are not available in proper proportion each to the other, the double luncheon period and eight hour use of regular rooms may be tolerated as a temporary makeshift, but it cannot be defended on the basis of either economy or more intensive use of plant; it is, moreover, not an essential feature of the departmental organization.

But even the departmental organization of a school, on the basis of a seven hour pupil instruction day and a seven hour daily use of regular rooms, does not provide

[1]See page 74.

[2]These mathematical relations hold approximately for schools of all sizes large enough to accommodate an extended program.

for continuous employment of all facilities. One seventh of all special facilities, other than auditorium and gymnasium, which constitute more than a fourth of the entire plant, will be idle practically all the time.[1] There are, besides, certain other facilities, particularly outside equipment, that will be unused from a half to two thirds of the entire school year. For example, when from time to time children are at work in the school gardens, nature study rooms and botany laboratories are likely to be empty; when children are on the playgrounds, gymnasiums and swimming pools are likely to be unoccupied, and *vice versa*. When special auditorium exercises take place outside the regular auditorium period, regular rooms are vacant, and so on.

Obviously, the new type of organization, when the school day is in excess of six hours, is not capable of keeping all school facilities in full use every hour of the school day. Undoubtedly, it possesses advantages over the old type of organization in semimodern plants, for in such plants, under the old organization, there is inevitable waste in connection with regular classrooms, and all special facilities, such as auditorium, gymnasium, cooking and manual training rooms. But whatever the length of the school day, there is a certain amount of waste even under the new type of organization, from failure to use the plant uninterruptedly, because the different kinds of facilities are not provided in proper proportion to one another, or because of peculiarities in

[1]See note, page 77.

the proposed program, or unusual makeup and grade distribution of the classes. The economic loss will certainly be greater in a school so organized than in a conventional school, and might even prove not less than in a semimodern school operating under the classroom type of organization, unless a high type of administrative talent is employed. Even then it is doubtful whether a plant so operated can be utilized ordinarily at more than 95 per cent. of its maximum capacity, if the experience of a well administered high school similarly organized is any criterion. The situation may therefore be summarized as follows: A school plant with modern features cannot possibly be utilized up to 100 per cent. of its actual physical capacity. Under the new type of organization it can, however, be used more steadily and effectually than under the conventional organization, but these possibilities cannot be realized without unusual administrative skill.

UTILIZING OUTSIDE FACILITIES

It is interesting to note in this connection that the new type of organization permits the use of outside facilities. In some of the schools of Gary pupils leave the building at fixed intervals for religious or library instruction and even for physical training. For example, at Jefferson they go to the public library, and to the Y. M. C. A. for physical training and competitive games. If it is regarded as desirable to place school children in other institutions for a part of the school day and thus to

take advantage of the resources of other child welfare agencies, it becomes possible to increase the number of children the schools can care for. At Gary, however, these outside activities are almost always scheduled for the period or periods when the children would otherwise be in the gymnasium or at play; consequently, with the possible exception of Jefferson, this outside work has not affected the number of pupils the several buildings have been able to accommodate.

GRADE GROUPINGS AND SIZE OF PLANT

The foregoing considerations raise to new prominence the questions: What are the proper divisions or grade groupings in a system of free public schools and what is the most desirable size of an elementary school plant? These questions are of great practical importance, because elementary schools can not ordinarily have enough seventh and eighth grade pupils to keep in constant use the special facilities required by an extended and diversified program.

To illustrate: A seventh grade program may offer a half year in botany and a half year in zoology, and an eighth grade program similar periods in physics and chemistry. If highly specialized facilities are furnished, as at Froebel and Emerson, and the instruction groups are half of a standard sized class, six seventh and six eighth grade classes are needed to keep them going continuously. If, on the other hand, there are combination laboratories, one for botany and zoology, and one for physics and chemistry,

three full sized classes will be needed in each of these grades. Similarly, a program may provide at least a year's work in cooking for girls. This may be distributed, half to the seventh and half to the eighth grade, or all to the eighth grade. In either case, to keep a single cooking room and teacher engaged six hours a day, when the instruction groups are half of a standard sized class, requires the girls from six full sized classes. The problem appears in its acute form when opportunity is offered such pupils to participate in a variety of specialized industrial activities. For example, the Emerson school in 1915–16 provided forge and foundry as well as cabinet and woodturning shops. These arts appeal primarily to boys who make up less than half of all upper grade classes. Therefore, as each shop can accommodate six half classes a day, to keep these four shops employed, provided all boys take industrial work a period a day throughout the seventh and eighth years, would require not less than 12 seventh and 12 eighth grade classes. There are, however, only 7 seventh grade and 5 eighth grade classes in all the schools of Gary, which points to the economic impossibility of offering too much variety in specialized industrial opportunities in an ordinary elementary school.

Gary has attempted to solve the problem by combining elementary and high schools, and by using the same specialized facilities for the instruction of upper grade, even lower grade, and high school pupils. There is obviously a sharp limit to the number of high schools

that can be established in conjunction with elementary schools, for no city can possibly need as many high schools as elementary schools. Moreover, the specialized facilities required by an up-to-date high school are different from those required by seventh and eighth grade instruction and are as far above the needs of the seventh and eighth grades as the facilities they require are different from and above the needs of the intermediate and primary grades. The most general special facilities, such as handwork and drawing rooms, and nature study rooms, suffice for grades one to six, and it is only the high school that requires highly specialized equipment such as separate art studios and separate science laboratories. Therefore, to be compelled to use with intermediate and primary pupils facilities appropriate to the seventh and eighth grades, or to use high school equipment with seventh and eighth year pupils, inevitably involves a certain amount of waste.

The first step toward the solution of the problem will compel, we believe, a new grade grouping within the public schools. The junior high school movement has already pretty clearly indicated the nature of the realignment needed, and it should occasion no surprise that the requirements of the junior high school, itself an attempt to modernize the seventh and eighth grades, should coincide with the requirements of an expanding program for all grades. The arrangement most favorable to the development of modern programs and to the full use of all facilities each hour of the school day is, we believe,

approximately as follows: elementary school, grades one to six; junior high school, grades seven to nine; and senior high school, grades ten to twelve; that is, the six-three-three plan of organization. In large cities, there would be separate buildings for the junior and for the senior high schools. In cities the size of Gary, the junior and the senior high schools might well occupy the same building, while in small cities, a single building would suffice for all three schools.

The second step involves the erection of plants designed to operate specific programs and to accommodate a given number of classes. A conventional program can be given about as well in a twelve room plant as in a twenty-four or a forty-eight room building. Economically, there is little to choose. In fact, aside from the distance children must go, there are only two questions of importance to consider: How large can a plant be without depriving the principal of that intimate knowledge and contact essential to the achievement of satisfactory results, and how small can a plant be without interfering with proper pupil grading? On these questions opinions and practices differ widely.

An extended and diversified program alters entirely the situation. To operate it at all the rooms must be of different kinds and to do this economically these must be in proper proportion to one another. Here is then a real criterion. The working size of a building can not be increased merely by adding a number of regular rooms. Due respect for economy forbids that gymnasium or

Group of Portables—Ambridge School

auditorium or shops have a daily capacity of forty classes, while other facilities provide for only half as many. To be sure, the number of children to be housed, their convenience and best interests determine the number of plants to be erected; but the number of classes to be accommodated in any given building, or its size, as well as the character of and relations between its facilities, must be determined by the requirements of the program to be followed. Hence, the starting point as well as the final basis of decision in the erection of a new plant is the program to be offered. This involves deciding by grades on the regular studies and special activities to be included; on the length of the school day, on the division of the school day among the different kinds of work, on the allotment of time to each of the special activities, and on the extent to which the proposed special activities require general or highly specialized facilities, on the length to which departmentalization is to be carried, and on the size of the instructional groups. When plants are thus built around a given program and plan of organization, it will be necessary, we believe, in order to provide at a minimum cost a broad, varied, and rich course of study, to make schools larger than is common at present; but they will not necessarily need to be so large as the Emerson and Froebel schools.

While the larger plant provides the more favorable conditions, the new type of organization may be employed in schools of almost any size, as the experience of Gary shows. For example, at the Clarke school, which has

only two rooms, each teacher is responsible for a room and yet the teachers as well as the children circulate freely. They come together for general or auditorium exercises now in one room and now in the other. One teacher takes most of the arithmetic, history, and physiology; the other, most of the reading and geography, and so on, according to the special interest, preparation, and skill of the two teachers. The 24th Avenue school has seven teachers, with classes ranging from the kindergarten to the second grade. Here one teacher has the play and physical training, and another, the literature, music, nature study, and gardening. The Glen Park school, with eight teachers and all grades, shows a further division of work. One teacher does the play and physical training, another has charge of the auditorium, music, and expression, and there is also a separate teacher for manual training, handwork, and mechanical drawing, and for cooking, nature study, and gardening. At Beveridge, a school with fourteen teachers, departmentalization is still more complete. Manual training, cooking, handwork and drawing, nature study, music and auditorium, and play and physical training each have special teachers.[1]

LENGTH OF THE SCHOOL DAY

Finally, it is desirable to call attention to the fact that the new type of organization is not bound up with a seven hour instruction day. With the new type of organiza-

[1]See Table C of the Appendix.

tion, as with the old, the school day may be of any desired length. To be sure, an extended and diversified program requires more time than a narrow, conventional program; but not necessarily seven hours. For example, by the simple expedient of eliminating the auditorium the Gary program could be reduced to six hours. For certain congested and foreign sections of Gary there are convincing reasons why the instruction day should be seven hours. But under other living and social conditions there may be objections to a school day in excess of six hours.

SUMMARY

To summarize: The number of pupils a plant will accommodate under the new or departmental type of organization is determined by the requirements of the program followed and will vary with these requirements.

With a rich and varied program, the pupil capacity of a modern plant will be greater under the new type of organization than under the classroom type of organization, as it permits the maximum use of both regular and special teachers and of all facilities.

Special facilities cannot ordinarily be kept in use more than six hours a day whatever the type of organization, but the loss in a modern plant under the new type of organization, when the program is rich and varied, will never be as great as it would be under the old type of organization.

Conditions are most favorable under the new type of organization when the instruction day is six hours, when

the grade groupings are on the six-three-three plan, and when plants are erected in view of the requirements of particular programs and for the accommodation of a given number of classes.

While a large plant offers the most favorable field of operation, the new type of organization may be employed within limits in a school of any size having more than one teacher.

VI. SUPERVISION AND ADMINISTRATION

THE results achieved at Gary in respect both to education and cost depend no less than in other systems upon the effectiveness of the administration and supervision.

SUPERVISION

The administrative and supervisory staff of the Gary schools consists of a superintendent, an assistant superintendent (who is also director of night schools and supervisor of the upper grades of elementary day schools), an assistant superintendent in charge of kindergarten and primary grades, a supervisor of handwriting, of physical education, and of the industrial arts, certain heads of high school departments theoretically responsible for the supervision of their subjects throughout the system, and school principals.[1] With the exception of heads of departments and school principals, these officers are charged with the responsibilities commonly associated with their respective titles and positions.

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[1]A teacher at Froebel who gave a considerable amount of his time to advising and assigning pupils to industrial work is not included in this enumeration.

GENERAL SUPERVISION

The superintendent of schools and his two chief assistants may be characterized as general supervisors, since their control is exercised not over a particular subject or a particular school, but over the entire system. It is not easy to describe their activities, nor is it easy to evaluate their work. The theory of supervision, which accords with the practice observed, can be best expressed by saying that the general supervisory staff develops a plan of organization, making suggestions and outlining ideals to be attained, and then leaves the other members of the school staff to realize these aims in their own way.

The superintendent participates in the actual organization of certain phases of the work, such, for example, as transition classes between the kindergarten and first grade, and all school programs are submitted to him for review and approval. Three or four times a year he holds general teachers' meetings on Saturday afternoons for the discussion of policies and methods of procedure, but routine matters occupy a conspicuous place at such gatherings. Occasionally, he announces special meetings, but these are, as a rule, given over to topics of particular interest to the teachers themselves, such as the length of the instruction day and salary schedules. Informal conferences are held at long intervals with supervisors, principals, and heads of departments, and now and then a teacher calls at the office, but seldom for any other purpose than to adjust some personal matter. From time to

time, questions of repairs, rearrangement of classrooms, additions to buildings, and improvements to grounds, take the superintendent into the schools for an hour or two at a time, and occasionally he observes classroom work.

Similarly, the two assistant superintendents hold meetings with the particular teachers under their direction, the one supervising the upper and the other the kindergarten and primary grades. The schools are dismissed an hour earlier to permit teachers to attend. General problems of interest to the particular grades receive some attention, but the time is mostly consumed with details of instruction and routine in management. The assistant superintendents also visit classes, observe the instruction, advise with the teachers, and finally grade them, as is required by the Indiana law. They assemble reports on children's work, determine whether or not they shall be promoted, oversee the makeup of their daily schedules, and advise in the organization of classes. In fact, the assistant superintendent of the kindergarten and primary grades gives a good part of her time to studying individual needs and to seeing that children are properly classified. Nevertheless, on the whole, there is too little supervisory effort to organize the practices—many of them recent—for the achievement of the proposed aims of the Gary schools, too little close supervision to see whether the classroom work makes good the theories and aims adopted, and too little central endeavor to determine the quality of the pupils' performances. In a word, the general supervision is inadequate in amount and ineffective in its results.

There is no good reason why this should be so. Three general supervisors, with the assistance of three special supervisors,[1] should be able to give unity of purpose and consistency of effort to a system having less than 150 teachers and less than 6,000 pupils. Nor is it because the outlay for supervision is meager. The combined salaries for 1915–1916 of the general supervisors, chargeable to the regular day schools, amounted to $8,925, and of the three special supervisors, to $3,650, a total of $12,575.[2] In truth, the situation raises an interesting question: What are the possibilities, what should be the practice, and what should be the character of supervision in a school or school system experimenting with program and organization? It is impossible to answer these questions offhand. It is, however, apparent that the more complicated and novel the system, the greater the need of central direction, the greater the need of unity of policy, and the closer the scrutiny with which results should be observed. Schools like Emerson and Froebel are more complex both in program and in organization than the conventional school, and hence there is every reason to believe that they require rather more

[1]To be exact, there are two and one third general supervisors, counting the superintendent, as one assistant superintendent gives only one third of his time to the day schools. On the other hand, the teacher at Froebel mentioned in the footnote on page 89 is not included among the special supervisors. It is to be noted also that the industrial supervisor has charge of repairs, but as this repair work is supposed to be educational, we consider his entire time as being given to supervision.

[2]See Tables III and IV of report on Costs.

Playground—24th Avenue School

than less the customary amount of administrative and supervisory direction and control, always provided, be it understood, that it is supervision of the right kind.

Obviously, there is a real danger of the wrong kind of supervision in a school that is attempting tasks requiring new and resourceful adjustments, as would be the case if the supervisors should lack sympathy with the extension and enrichment of the curriculum and the type of organization needed for these purposes. The success of a more or less novel educational enterprise depends on vision, initiative, and a certain freedom. But freedom is not license. Genuine experimentation is exacting. While, therefore, the supervision required in a school system which is itself to a degree experimental differs from that needed in schools working in conventional ways for conventional results, there is certainly the very greatest need in the former of supervisors of deep insight and liberal sympathies, who will assist teachers to appreciate the ideals back of modern education as well as to grasp clearly the specific aims which they are to realize, who will direct them in developing instructional materials and teaching methods appropriate to the realization of their aims, and assist them in measuring and evaluating the products of their classroom work by the sound and inevitable standards of practical life.

THE SCHOOL PRINCIPAL

The Gary school principal has little to do with the educational side of his school. He organizes it in con-

sultation with the superintendent and assistant superintendents, looks after the building and grounds, meets parents, handles special attendance and discipline cases, orders books and supplies, collects reports from teachers, hires and supervises the janitorial force, and makes reports to the superintendent; he also arranges the programs of teachers and supplies substitutes, holds weekly teachers' meetings after school hours to consider questions of discipline, attendance, and school management, and occasionally visits classes, but he has no responsibility for the quality of the teaching. Records of enrollment, of promotion, and of scholarship come to his office, but the responsibility for what pupils do and for their promotion belongs to the teachers and general supervisors. In short, the principal is an administrative officer. Our observations and our investigations of the quality of the instruction indicate the need of a more detailed and intimate type of educational control, such as the best school principals of other systems exercise. The principal at Gary should undoubtedly be the head of his school, even if the business management has to be delegated. For general supervisors who go from school to school are rarely intimate enough with the needs and abilities of particular children to advise wisely as to their programs or their promotion, nor do they, as a rule, know individual teachers well enough to be able to offer the helpful criticism and suggestions which make for the highest degree of efficiency in a teaching corps.

SUPERVISORS OF SPECIAL SUBJECTS

Special supervisors have to do with given branches of instruction only; the handwriting supervisor, for example, with handwriting. This particular special supervisor at Gary corresponds, however, more nearly to what is known in other systems as a special teacher. He goes from building to building and from room to room actually teaching classes, particularly of the upper grades; he counsels teachers, gives suggestions, and at long intervals brings them together for conference.

The supervisor of physical training[1]—the latest addition to the supervisory staff—works in much the same way. Through observing teachers at work, personal interviews, printed directions, occasional conferences with groups, and now and then a place on the program of a general meeting, he keeps in touch with the play and physical training instructors in the larger plants and even gives some direction to the work undertaken in the small schools by teachers who have had little or no special training. Under his oversight, considerable has already been accomplished in organized play, in interscholastic athletics, and other recreational activities.

The supervisor of the household and industrial arts

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[1]The exact status of this supervisor is an open question. Officially he is ranked as a teacher. We rank him as a special supervisor, because he has no class assignments on the school program, and because he gave all his time to supervision during the period of our study of physical training.

superintends also the repair work of the entire system and oversees some new construction. During the period of the field work of the survey, repairs, together with moving pictures, consumed most of his energies, and there is little reason to believe that he ever has much time for his strictly supervisory duties. To be sure, he is in and out of the several shops and even cooking and sewing rooms almost daily; he knows precisely what engages each shop and is thus able to give a certain unity and direction to the work. He also meets with the shopmen two or three times a year for an evening's discussion of their particular educational problems, but at most, there is little direct educational supervision of the practical work for boys and even less of that for girls.

The heads of high school departments, particularly those at the Emerson school, feel a certain responsibility for the teaching of their subjects in all grades and throughout the system. There is, however, no evidence that this mode of supervision is more than a theory. The head of the English department at Emerson and the physics teacher in the same school are, to be sure, keenly interested and have some influence in their respective fields, but teachers work, for the most part, independently of such control.

ADMINISTRATION

Superintendents and school principals handling the new type of elementary organization have to deal with practically the same administrative problems as admin-

istrators of conventional systems, but a number of these problems have taken on new and more complex forms, which make the administration of such an elementary school comparable in difficulty with the administration of a modern high school.

Among these problems are the storage of children's wraps and instructional supplies, the equipment of rooms occupied by children of different grades and ages, discipline growing out of the frequent passage of classes from room to room, types of records and reports needed when children are not under the control of one teacher, and finally program making.

STORAGE FACILITIES

Storage space for the books and wraps of children is provided at Gary by means of lockers installed in the hallways and in some of the shops. Attractive cupboards hold the textbooks and materials used in academic instruction, and such supplies as the special activities require are kept in the special rooms. As far as possible, children are assigned lockers on the same floor and near the rooms where they will be the last period before luncheon and the last period in the afternoon.

SCHOOL FURNITURE

A somewhat more difficult task is that of providing furniture of suitable size, when c asses with children of different ages and grades use the same room. This problem has not been successfully solved at Gary. Very

often the feet of children seated at desks or on chairs do not reach the floor.[1] Special rooms are equipped with furniture of one size only, and, although there are usually desks of two or three different sizes in regular rooms, sufficient care is not exercised to schedule classes so as to use to the best advantage equipment of the sizes provided. The difficulty is by no means insurmountable, at least in fairly large schools. Rooms can be properly furnished and devoted to a single grade group; for example a single regular room can be used by second grade classes for academic work the whole day. A large school, providing the more general equipment for the household and industrial arts, as the Passaic school mentioned above, will need more than one special room for this work. Hence, equipment can be varied so that the children of the first two grades will use one set, the third and fourth another set, and the fifth and sixth still another set. Similarly, special rooms for the seventh and eighth grades can easily be supplied with chairs or stools of two or three different sizes.

SCHOOL DISCIPLINE

Under the new type of organization, practically the whole school appears in the corridors at the same time and goes from one part of the building to another not less than four times a day. For the sake of promptness and order all classes should move at the same moment. Other devices may be employed, but for satisfactory results a

[1]See illustration opposite page 100.

pneumatic clock and a full set of electric signals are essential. This corridor life gives rise to new problems in conduct and in discipline. In certain of the Gary schools, the corridor discipline, though varying, is not everywhere or always satisfactory; but this is a local matter depending on the principal. No unprecedented or novel difficulty is presented, except perhaps the extension to elementary pupils of a type of self control already common with older pupils. An easy, natural, but self controlled mode of deportment is desirable. Gary indeed aims to secure just this and often does, but supervision is in some places perhaps somewhat too lax.

RECORDS AND REPORTS

The departmentalized elementary school, even more than the conventional school, requires an adequate system of records and reports. Not the least difficult of these to devise and to keep is the record of attendance. At the time of the survey, the Gary procedure in recording attendance and absence was as follows: At the beginning of the term, each pupil takes his daily program card to the proper class teacher, who initials the card for the particular period for which the pupil is registered with him, and enters the pupil's name on his class roll. At each class meeting, the teacher calls the roll and a pupil selected for the purpose writes on an absence slip the names of all pupils not present, designating the room and period. These absence slips are collected at the last hour of the day and taken in charge next morning by the

"clearing house," a group of pupils who, under the direction of a teacher, make up the attendance record of the school for the preceding day, copy on a separate slip the names of all pupils absent belonging to each register teacher, and deposit these with the proper teachers. Other pupils, serving as helpers, usually transfer these reports for the register teacher to the permanent attendance records of the particular group for which the given register teacher is responsible; children not reported absent are marked present.

Children may well profit by such responsibility and by engaging in such work, but the records kept in this way are strikingly incomplete, as evidenced by Table IX,[1] which shows for each period of a given day for both Emerson and Froebel schools the number of pupils scheduled, the number of pupils actually present and accounted for, and the number not accounted for. Thus, at the Emerson school as many as 34 pupils are unaccounted for during one period, and at Froebel the number varies at given periods from a few to several hundred.

The discrepancy between the number of children scheduled for a particular period and the number present by actual count, when allowance is made for those reported absent and excused, can only be explained on the basis of failure to keep complete records, if not to control attendance. The discrepancy at Emerson is small and yet sufficiently large to indicate laxity. At Froebel, the conditions approach demoralization.

[1]See page 101.

Expression Room—Emerson School

TABLE IX

Number of Pupils Not Properly Accounted for Each Period of June 12, 1916[1]

	Periods							
	8:15	9:15	10:15	11:15	12:15	1:15	2:15	3:15
Emerson								
Number Scheduled	680	680	680	399	266	663	663	637
Number Actually Present, Excused or Reported Absent	677	681	658	365	233[2]	641	660	256[3]
Number not Accounted For	3	+1	22	34	33	22	3	
Froebel								
Number Scheduled	1,470	1,518	1,518	670	840	1,517	1,517	1,429
Number Actually Present, Excused or Reported Absent	1,214	1,436	1,305	770	947	1,292	1,261	875
Number not Accounted For	256	82	213	+100	+107	225	256	554

[1]The day was fair and warm and an actual count was made of the pupils present.

[2]For all other periods, the number given includes pupils found anywhere about the plant; the number for the particular period does not include pupils in or about the playgrounds, shops, library, "zoo," auditorium, and the like.

[3]Five classes were dismissed in order that the teachers might be free for register work.

PROGRAM MAKING

In a conventional school, program making is a simple matter. The program for each class of a given grade is practically fixed by the course of study; it remains for the class teacher to arrange the order of daily exercises so that there is a proper balance between the easy and the difficult. Under the departmental type of organization, program making is peculiarly the work of the principal and presents at once great opportunities and great difficulties. Upon the skill exercised in devising and dovetailing the several class schedules depends the use made of the plant and its facilities. Further, there are great educational possibilities in adapting the work of the school to particular class and individual needs. Class and individual differences may within limits be taken into account; the hours of some specially needed type of work may be increased, and opportunity may be given for double promotion or for specialization. The extent to which classes and individuals may be put where they can work to the best advantage depends, of course, on the breadth of the program, the building facilities, and the number of classes in each grade and subject.

To take full advantage of an extended and diversified program in a departmentalized school it is necessary for the principal to have in his office for guidance a carefully kept cumulative record card showing each pupil's attendance, scholarship, and previous work in every regular and special subject. Gary provides such a

form in the possession of the register teacher, but the record is poorly kept. It is also necessary for the principal in making up the pupil's program for a given year and grade to have in mind the child's entire school career.

Gary does not realize the possibilities of its program, as the study of a single Froebel class (No. 44, 7A) illustrates. This class contained many weak pupils in unquestionable need of individual consideration and attention. Its official spring program was as follows:

8:15	Gymnasium (play) or library
9:15	Music
10:15	Arithmetic
11:15	English
12:15	Luncheon
1:15	Auditorium
2:15	Shop (boys); Cooking or sewing (girls)
3:15	United States history[1]

In a conventional system each of the 31 pupils of the class would take the above studies at the designated period. At Gary the entire 31 pupils recited together in a single class—arithmetic—at the scheduled time. (Table X.[2]) Only two other subjects—gymnasium and English—claimed all members, but in neither of these branches were they all in the same class. Twenty-three took no music, seven no history, and four no auditorium. These variations might well represent real educational

[1]The class at this period was first scheduled for expression but the work was changed to United States history.

[2]See page 104.

TABLE X

DISTRIBUTION OF CLASS 44 (7A) BY STUDIES AND PERIODS

PERIODS	STUDIES											TOTAL
	GYMNASIUM OR LIBRARY	MUSIC	ARITHMETIC	ENGLISH	LUNCH	AUDITORIUM	SHOP	COOKING OR SEWING	DRAWING	HISTORY	HOME	
8:15	27							1		2	1	31
9:15	13	7	1				2	6	2			31
10:15			31									31
11:15				30	1							31
12:15				1	30							31
1:15	1			2		27					1	31
2:15	8	1					7	9	5	1		31
3:15							3		2	21	5	31
Total	49	8	32	33	1	27	12	16	9	24	7	

gains. However, as we point out in the next paragraph, they are not adjustments to serve the interests of particular pupils or to secure their regular advancement, but merely chance arrangements, the product of loose administration and supervision.

The most surprising variations occur in the 9:15 and 2:15 periods. At 9:15 the class is scheduled for music. At that time thirteen went to the gymnasium, seven had music, one arithmetic, two shop, six cooking or sewing, and two drawing. At 2:15 boys are supposed to be in shop and girls in cooking or sewing. Actually, eight went to gymnasium or library, one to music, seven to shop, nine to cooking or sewing, five to drawing, and one to history. Again, the official program calls for only one period a day in each of the several studies; and yet fourteen pupils took two hours of gymnasium or library and two took three hours. Twelve pupils did double and one treble duty in practical work. (Table XI[1].) All told, there were thus not less than fifty-four deviations from the official class program, but only three were to afford additional academic instruction—one in arithmetic and two in English.

All persons concerned—teachers, principal, and children—were questioned about these changes. The principal, whose written endorsement is required, had no recollection of the reasons for them and no record of them. Although the pupil's Program Card reads, "No dropping of class nor change of program will be permitted

[1]See page 106.

without the written consent of the assistant superintendent," the children had not consulted this official. A teacher employed to advise with children about their practical work knew nothing about these departures. Register teachers,[1] supposed to have on file for each change "Permission to Change Class" slips, had barely a half dozen of them—not one completely executed—and were, therefore, almost wholly unaware of what had happened. The fact is, that in a few instances, the regular teachers, on their own authority, excused pupils from their classes, but in most instances children dropped what they did not want and elected what they wanted,[1] provided they could get it, without consulting anybody. Prolonged

TABLE XI

DISTRIBUTION OF CLASS 44 (7A) BY THE STUDIES TAKEN AND THE HOURS PURSUED

SUBJECT	NUMBER OF PUPILS NOT TAKING	NUMBER OF PUPILS TAKING		
		ONE HOUR	TWO HOURS	THREE HOURS
Gymnasium or Library		15	14	2
Music	23	8		
Arithmetic		30	1	
English		29	2	
History	7	24		
Auditorium	4	27		
Practical Work:	8	(10)	(12)	(1)
Shop		3	3	1
Sewing or Cooking		5	6	
Drawing		2	3	

[1]There were seventeen register teachers keeping the records of this one class.

inquiry showed clearly that with five or six exceptions all these changes were the result of childish caprice exercised without restraint.

Nor does class 44 stand alone. Out of eleven additional Froebel and Emerson classes similarly tabulated, in six there was not a single pupil taking double work in any of the regular studies, and in the remaining five classes, not more than a single pupil in any one of them. In no class were there as many deviations from the official program in special work as in class 44. Still, such deviations as there were, were rarely educational adjustments; they were due mostly to the child's own choice, to the organization of the school at the time, and to the special facilities available. Nevertheless, the flexible class program might easily be made a material factor in the development and regular advancement of pupils, in academic as well as special activities. But, obviously, no little judgment, knowledge, and sympathy are required for efficient administration. Finally, an intelligent and consistent policy cannot be pursued in the absence of complete and accurate individual records.

SUMMARY

Supervision in schools like Emerson and Froebel is clearly more difficult than in conventional schools. The amount expended for this purpose at Gary would seem adequate, but the supervision provided is not appropriate to the real needs of a system that is more or less experimental in character.

The administration is not efficient. The problems to be met—program making, corridor conduct, attendance, records, etc.—are admittedly difficult of solution. Yet the modern high school has dealt with these very problems more or less successfully for years.

Finally, there is even greater need of wise administration and supervision in elementary schools having extended and diversified programs and operating under a departmental organization than in conventional schools, but to secure central direction and control of the needed character it will be necessary, in our opinion, to provide a higher type of administrative and supervisory talent than is usually found in conventional systems.

VII. COMPARATIVE COST

WHILE superintendents admit that extended and enriched programs and facilities, such as the two larger Gary schools afford, are desirable, many of them hold that under ordinary conditions the cost is prohibitive. On the other hand, boards of education have been strongly recommended to provide similar facilities and educational opportunities on the ground that, when such schools are operated under the new type of organization, they are no more expensive than conventional schools. Which of these conflicting opinions is correct?

Our report on cost gives in detail the actual expenditure for all Gary schools for 1915–1916, and the cost by grades for the three largest schools. Comparative cost was not and could not be considered. To assemble data on the basis of which reliable comparisons could have been made would have involved an equally thoroughgoing financial study of other cities. However, data presented in the several chapters of this present report now enable us to throw some light on the problem. The answer is not in terms of dollars and cents, but in terms of service. Though something more could be desired, the ideas of comparative cost now to be pre-

sented will not be without value from the standpoint of the considerations which determine the general school policies of a community.

Differences of expense in providing and maintaining conventional elementary schools, semimodern elementary schools,[1] and elementary schools like Emerson and Froebel are due, apart from the length of the school day, to differences in the cost of

(1) Buildings, grounds, and equipment, or plant;
(2) Instruction, or teachers' salaries;
(3) Administration and supervision;
(4) Plant operation and upkeep;
(5) Instructional equipment and supplies.

COMPARATIVE PLANT COST

In considering the relative building cost of a conventional school and of schools like Emerson and Froebel, two questions are involved: (a) the difference in the amount and character of plant capacity required to do the same unit of service, for example, provide for sixty standard sized classes; and (b) the difference in cost of an equal capacity in regular classrooms and in special facilities.

There is no magic in the new type of organization making it possible to accommodate two classes where formerly only one was cared for. Hence, when the proposed pupil instruction day is six hours, the capacity required is, as we have seen, the same whether the school is conven-

[1]For definition of conventional and semimodern school, see page 59.

tional or has special facilities and is operated on the departmental type of organization. There is, however, a difference in the character of the facilities. An illustration will clarify the issue. If a community having a 30 room conventional school plant must, by reason of rapid growth in population, provide at one time for 30 new classes, the situation may be met in one of two ways. The capacity of its conventional plant may be doubled by adding 30 conventional rooms; or an equivalent capacity in special facilities may be provided. In the latter case, if the proposed program is divided as suggested on page 71, the 30 ordinary rooms already at hand may be used, and, in addition, it will be necessary to provide:

(a) Gymnasium capacity equivalent to $11\frac{5}{8}$ standard classrooms;

(b) Auditorium capacity equivalent to $6\frac{3}{8}$ standard classrooms; and

(c) Capacity in other special facilities, such as nature study rooms, handwork rooms, cooking and manual training rooms, equivalent to $11\frac{4}{8}$ standard classrooms; or a total capacity in special facilities equal to the capacity of 30 ordinary classrooms.[1]

The financial question before the community is, therefore: Will a capacity in such special facilities equivalent to the capacity of 30 standard classrooms cost as much as, less, or more than, 30 conventional rooms?

The cost of standard classrooms as well as of equiva-

[1]See page 72.

lent capacity in special facilities varies from city to city and also with building standards. But in the same city and with building standards in both cases the same, school architects are generally of the opinion that on the whole special facilities, such as those in question, can be provided at approximately the same initial cost as an equivalent capacity in standard classrooms.[1] In other words, a new plant for a six hour school day and a program divided as suggested above, can be procured for about the same initial outlay as a new conventional building of the same capacity; further, when sufficient additional capacity is needed, a conventional plant can be provided with special facilities for about the same expenditure as would be required to provide an equivalent increased capacity in regular rooms.

Although this conclusion, based on a 60 class building, holds approximately under the above conditions for plants sufficiently large to accommodate an extended and enriched program, whether for 18, 24, 30, or more classes, it is subject to a number of limitations; it would, for example, not cover extraordinary and unusual facilities, such as highly specialized laboratories for each of the sciences, or highly specialized practical shops, such as

[1]The opinions of architects are of value, but they would be the first to grant that the issue can be finally settled only on the basis of actual construction cost. Unfortunately, such data are not now at hand. Moreover, the question can probably never be settled for all buildings, but will have to be settled for each plant separately in view of the particular requirements. Among others, we have consulted the school architects of New York, Boston, St. Louis, Cleveland, and Newark.

forge and foundry. As pointed out above, such laboratories are neither necessary nor desirable, and highly specialized practical equipment cannot be operated economically in an ordinary elementary school.[1] Nor does the conclusion cover outside facilities, such as playgrounds, school gardens, and athletic fields. However, if the comparison is limited to an elementary school for the first six grades, it would more nearly cover the needed playgrounds and school gardens, depending, of course, on land values and the land area provided. Finally, the conclusion rests on the assumption that the two types of plants are used at their maximum capacities. It is, however, next to impossible, as we have seen,[2] to get maximum service out of a plant having special facilities and operated under the new type of organization, and this fact alone would probably increase the cost of such a plant as much as 5 per cent. over a conventional plant of the same actual capacity.

Nor does the conclusion hold for a seven hour pupil instruction day in schools like Emerson and Froebel in comparison with a six hour pupil instruction day in conventional schools. For, as we have seen, when the pupil instruction day in such schools is seven hours, and the program is divided as suggested on page 74, the building requirements of a 60 class school, when regular rooms are used eight hours, are equivalent to the capacity of 62½ standard classrooms, and when ordinary rooms are

[1]See pages 82–83.

[2]See pages 79–80.

used seven hours, equivalent to $62\frac{5}{14}$ standard classrooms.[1] That is, to extend the pupil instruction day in schools like Emerson and Froebel from six to seven hours increases the building requirements a little more than 4 per cent.

A kindred question is the cost of remodeling a conventional plant to provide the special facilities required by an extended and enriched program and the new type of organization. If the remodeling contemplates no increased capacity, but merely changes standard classrooms into special facilities, such as handwork rooms, nature study rooms, and auditorium, the cost of remodeling is an added expense. It frequently happens, however, that there are rooms in conventional buildings which, while not suited to regular academic work, may, when slightly altered, be employed for special activities; for example, a basement room may be used for cooking or manual training. By reason of the space in conventional plants that may thus be brought into active service, it is sometimes possible to add to the capacity of the plant enough to cover the whole or a part of the remodeling cost.

Unlike the conventional school, the semimodern school has, besides regular classrooms, certain special features, such as cooking and manual training rooms, auditorium or gymnasium; and, as operated, these contribute next to nothing to class capacity. Hence, other conditions and building standards being the same, plants of semimodern schools always cost more than conventional plants of similar capacity, and their relative expensive-

[1]See page 77.

ness over conventional plants increases with the number of special facilities provided.

In contrast, all special facilities in schools like Emerson and Froebel, theoretically, at least, contribute their part to class capacity. The plant of a semimodern school is, therefore, also relatively more expensive than plants like Emerson and Froebel, and, under given conditions, might, although it probably never would, be as much as 50 per cent. more expensive.

To illustrate: A semimodern school might offer precisely the same program and its plant afford precisely the same special facilities as one of the larger Gary schools. The only essential difference between the two schools under these conditions would be: The former is operated on the classroom type of organization, which leaves regular rooms idle when children are in special rooms; and the latter is operated on the new type of organization, which attempts to keep all facilities in use as continuously as possible. In this event, when the pupil instruction day is six hours and the proposed program is divided as suggested on page 71, a semimodern school to accommodate 60 classes would require 60 regular rooms and a capacity in special facilities equivalent to 30 standard classrooms, or a total capacity equivalent to 90 standard classrooms; whereas a school operated like Emerson and Froebel to accommodate 60 classes would require a total capacity equivalent to 60 standard classrooms.[1]

Regard for economy prevents school authorities from

[1]For plant requirements under the given conditions, see pages 71–72.

attempting highly extended programs in semimodern schools. But school authorities, especially in our larger cities, attempt in such schools moderately extended programs. Consequently their plant expenditures are always more per standard class than if they were content with conventional schools, and even when the pupil instruction day is not in excess of six hours, the outlay for plants may be as much as 50 per cent. greater per standard class than if the schools were operated on the new type of organization. In a word, whereas plant cost for a departmentalized school per standard class, exclusive of all outside facilities, will probably be as much as 5 per cent. more than for a conventional school, plant cost for a semimodern school is always greater per standard class than for a school operating under the new type of organization, and increases with the extent to which the program of the semimodern school requires special facilities.

COMPARATIVE COST OF INSTRUCTION

Similarly, the comparative cost of instruction in conventional schools, semimodern schools, and schools like Emerson and Froebel depends on such differences as there may be in the amount and character of the teaching service to be procured.

Conventional schools have a single teacher for each class. Therefore, a 60 class conventional school, when the pupil and teacher instruction day is six hours, needs 60 regular teachers.

With pupil instruction days of equal length, the number of class instruction hours for which a conventional school and schools like Emerson and Froebel must provide is the same. Hence, any difference in the number of teachers is due to differences in the size of the instruction groups, particularly in the special activities.[1]

With a teacher and pupil instruction day of six hours in schools like Emerson and Froebel, the program would probably be divided three hours to academic work and three to special activities. The three hours to special activities would probably be apportioned:

(a) Kindergarten and first grade, two hours to play and one hour to other special activities;

(b) Second to sixth grades, one hour to physical training, one to auditorium, and one hour to other special activities;

(c) Seventh and eighth grades, a half hour to physical training, a half hour to auditorium, and two hours to other special activities.[2]

The instruction groups in physical training for kinder-

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[1]Gary practice sheds little light on this point. The two larger schools are combination elementary and high schools. At Emerson, in the spring term 1915–1916, for 9 high school and 14 elementary and kindergarten classes there were 29 teachers, besides 3 shopmen, a printer, and an assistant in sewing; at Froebel, for 7 high school and 45 elementary and kindergarten classes, 52 teachers, besides 5 shopmen and a printer; at Jefferson, for 20 elementary and kindergarten classes, 20 teachers and part time of a custodian; and at Beveridge, for 14 elementary and kindergarten classes, 14 teachers and a practical cook. The pupil instruction day in all these schools is, however, seven hours.

[2]It should be noted that this program contemplates no variety of specialized industrial opportunities.

garten and first grade would probably be one standard sized class, and for all other grades, two standard sized classes; for auditorium in all grades, two standard sized classes; and in other special activities for all grades through the sixth, a standard sized class, and for the seventh and eighth grades, a half of a standard sized class.

Under these program conditions a 60 class school would require:

(a) 30 regular academic teachers;

(b) $8\frac{7}{12}$ physical training teachers;

(c) $3\frac{8}{12}$ auditorium teachers;

(d) 15 teachers of other special activities; a total of $56\frac{5}{6}$ teachers.[1] That is, 5 per cent. fewer teachers than a conventional school of the same size requires, and the

[1]To accommodate 60 classes three hours daily in academic work is equal to 180 class instruction hours (60×3). Each teacher gives six class instruction hours daily, hence, there will be required 30 academic teachers (180÷6).

To give 16 kindergarten and first grade pupils (the estimated number in a 60 class school—see page 67) two hours of play daily is equal to 32 class instruction hours and would require $5\frac{2}{3}$ physical training teachers (32÷6). To give 34 second to sixth grade pupils one hour of physical training daily, and 10 seventh and eighth grade classes a half hour is equal, with instruction groups two standard sized classes, to $\frac{82}{3}$ class instruction hours, and would require $3\frac{8}{12}$ physical training teachers ($\frac{82}{3}$÷6).

To give 34 second to sixth grade classes one hour auditorium daily, and 10 seventh and eighth grade classes a half hour is equal, with instruction groups two standard sized classes, to $\frac{82}{3}$ class instruction hours, and would require 3 $\frac{8}{12}$ auditorium teachers ($\frac{82}{3}$÷6).

To give 16 kindergarten and first grade pupils and 34 second to sixth grade pupils one hour daily in special activities other than auditorium and physical training is equal to 50 class instruction hours, and would require

same holds approximately for all schools large enough to accommodate an extended and enriched program.

Any material change in the above program conditions and in the grade distribution of classes will alter the number as well as the kind of teachers required. For example, if we decrease the proportion of the total time for special activities assigned to auditorium and physical training, the number of other kinds of special teachers needed is increased. Increase the size of the instruction groups in other than academic instruction, and the number of special teachers to be employed is decreased. It is nevertheless evident that, under given program conditions with a six hour pupil instruction day, schools like Emerson and Froebel can operate with approximately 5 per cent. fewer teachers than conventional schools of the same size.

But these differences do not indicate the exact relative instruction cost. The kind of teachers to be employed is not the same. The conventional school needs regular teachers only. Schools like Emerson and Froebel use regular teachers for most, if not all, of the academic instruction, but approximately half of them should have special training and specialized experience. Such teachers generally receive higher salaries than regular teach-

8⅔ special teachers other than of physical training and auditorium. To give 10 seventh and eighth grade classes two hours daily in special activities other than physical training and auditorium is equal, when the instruction groups are half a standard sized class, to 40 class instruction hours ($10 \times 2 \times 2$), and would require 6⅔ special teachers other than of auditorium and physical training ($40 \div 6$).

ers. For example, the median salary of all regular elementary teachers at Gary for 1915–1916 was $800,[1] and for special teachers,[2] $900. Whether a difference of 12½ per cent. would be generally true we do not know. Yet, in view of the data at hand and the known higher salaries of special as compared with regular teachers in other grades of school work, authorities interested in establishing schools like Emerson and Froebel would be on the side of safety if some such salary differences were taken into account.

There remains one other factor to consider. Sixty teachers are admittedly ample to care for 60 standard sized classes in a conventional school, but the 56⅝ teachers, the estimated number required to care for an equal number of classes in a school like Emerson and Froebel, is the very minimum required under the given program conditions. To operate such a school with this number of teachers requires an ideal class distribution and 100 per cent. efficiency in the use of teachers. Ordinarily, owing particularly to irregularities in the number of classes in the several grades, this is impossible. Hence, in all probability, to care for 60 standard sized classes in such a school would require one, two, or perhaps three teachers in excess of 56⅝.

[1]See The Gary Public Schools: A General Account, Ch. VI.

[2]Under special teachers are included those of auditorium, expression, music, freehand drawing, mechanical drawing, nature study, handwork, household arts, manual training, and physical training, but not shopmen, nor the high school science teachers who also teach seventh and eighth grade science.

Therefore, when the probable difference in salaries of regular and special teachers and the probable need of one, two, or three teachers in excess of the estimated number are taken into account, it appears that the instruction cost for teachers' salaries in schools like Emerson and Froebel will be as much as in conventional schools and may easily run 6 per cent. higher.[1]

Even this conclusion does not hold for schools like Emerson and Froebel when the pupil instruction day is seven hours. If the program for the seven hour pupil instruction day is divided as suggested on page 74, and if the instruction groups are of the size suggested on page 117, a 60 class school like Emerson or Froebel, when the teacher instruction day is six hours, requires 30 regular teachers and $33\frac{1}{6}$ special teachers, or a total of $63\frac{1}{6}$ as compared to $56\frac{5}{6}$ when the pupil instruction day in such schools is six hours.[2]

[1]On the basis of the median salary for regular teachers at Gary the salaries for 60 teachers in a conventional school aggregate $48,000. For a school equal in size to Emerson or Froebel, on the basis of the above estimate, there is need of 30 regular teachers, who, at $800, would cost $24,000, and need of $26\frac{5}{6}$ special teachers, who, at $900, would cost $24,150, or a total of $48,150. If to this there are added three special teachers in excess of the estimated number, at $2,700, the total would aggregate $50,850, or 6 per cent. more than in a conventional school.

[2]With the proposed seven hour pupil instruction day program for Froebel (see Appendix, Table G), 56 teachers care for 60 classes, 12 of which are of high school grade. The program requirements are, however, different from the above. It should be noted, for instance, that the 6 kindergarten classes have only a three period day and that there are 8 classes circulating as helpers; the physical training and auditorium instruction groups are also larger. It should also be noted that this proposed program provides only manual training and not a variety of specialized industrial activities.

Such differences as there may be between the number of teachers required by a conventional and a semimodern school of precisely the same size and with the same length of day arise from the fact that a semimodern school may and often does have special teachers. When they are occupied, a corresponding number of regular teachers are without classes and even the special teachers may not be kept busy. Obviously, a semimodern school will never require fewer teachers than a conventional school of the same size, and will ordinarily require more, the number varying with the extent to which regular teachers are relieved when their classes are under special teachers and with the extent to which special teachers are not kept fully engaged.

Differences in the number of teachers required by a semimodern school over schools like Emerson and Froebel arise from the same cause. Special teachers do not take the place of regular teachers in the former as in the latter; they are additional. Therefore, a semimodern school, which never needs fewer teachers than a conventional school, will probably require, with the pupil instruction day six hours and under the above program conditions, 5 per cent. more teachers than a school like Emerson or Froebel of the same size, and the excess will go above this according as the program calls for special teachers and these are provided.

To complete as well as to summarize these comparisons, schools like Emerson and Froebel, under given program conditions with a pupil and teacher instruction day of six

hours, require approximately 5 per cent. fewer teachers than conventional schools of the same size, and the per cent. will probably never fall as low as this in comparison with semimodern schools. However, authorities interested in extending and enriching the programs of their schools should not lose sight of the fact that the above estimate of the number of teachers required by schools like Emerson and Froebel may be exceeded in practice, nor of the fact that special teachers generally receive higher salaries than regular teachers. Hence, the instruction cost in schools like Emerson and Froebel will doubtless be as high as, and may easily be as much as 6 per cent. higher than, in conventional schools, but doubtless never as high as in semimodern schools. Let it, however, not be forgotten that for this relatively small possible increase in expense over the conventional school, immensely larger educational opportunities are obtained. The Gary scheme is not cheap in the sense that it offers more and costs less; it is only cheap in the sense that it offers much more and costs at most only a little more.

COMPARATIVE COST OF OTHER ITEMS

Of the other items affecting cost little that is definite can be said. Schools like Emerson and Froebel are more complex and require more delicate adjustment than either conventional or semimodern schools, and to be effective require a superintendent, supervisors, and school principals of high type. Hence, administra-

tion and supervision will be more expensive in such schools than in either conventional or semimodern schools.

The plant operation and upkeep cost of schools like Emerson and Froebel will also be slightly more than that of conventional schools, as the plant is more elaborate. On the other hand, the building requirements of a semimodern school are, in proportion to the number of pupils accommodated, more extensive than those of schools like Emerson and Froebel, because the special facilities are for the most part in addition to regular classrooms. Hence, plant operation and upkeep cost of semimodern schools will exceed that of schools like Emerson and Froebel to the extent that special facilities are provided which do not add to pupil capacity.

There will be little difference in the academic instructional equipment needed. Each regular room of a conventional and a semimodern school has some provision for the academic branches. In schools like Emerson and Froebel it is not only possible but necessary to furnish given rooms for teaching one or more of these studies. Therefore, while the academic instructional equipment in any one of these rooms would greatly exceed that of any single regular room in either a conventional or a semimodern school, there would probably be little difference in the total amount in the different kinds of schools, although for the same expenditure schools like Emerson and Froebel would doubtless be the best and the semimodern the least well provided.

There will be some difference in the equipment and

supply requirements of the special branches. These requirements in the semimodern school will exceed those of the conventional school to the extent that the former provides special facilities and gives specialized instruction in drawing, cooking, and manual training, whereas those of schools like Emerson and Froebel, to the extent that they give greater emphasis to the special activities, will exceed both those of the conventional and the semimodern school.

Experience thus far does not enable us to establish with certainty any one of the above positions. Nevertheless, there are good grounds for believing that authorities planning to extend and enrich the programs of their systems, and to adopt the departmental type of organization, would do well to count on an increased expenditure for administration and supervision, for operation and upkeep, and on added outlay for instructional equipment and supplies, varying in amount according as their present schools are conventional or semimodern. On the other hand, they would, of course, procure additional educational opportunities for this additional expenditure.

SUMMARY

Of the three kinds of elementary schools under discussion, the semimodern is therefore on practically every count the most expensive, and its relative expensiveness increases according as its program is extended and enriched, as its plant is improved by special facilities, and as special teachers are provided.

Expenditures for administration and supervision, plant operation and upkeep, instructional equipment and supplies will be heavier in schools like Emerson and Froebel than in conventional schools. The building and building equipment cost, aside from what may be spent on outside facilities, will be approximately 5 per cent. higher, and there are good reasons to believe that the instruction cost may be about 6 per cent. higher. Comparative expenses cannot, however, be fairly considered except on the basis of comparative opportunities. Schools like Emerson and Froebel may and probably do cost more to build and to run than conventional schools, but this slightly increased cost is a trifle in comparison with the increased educational opportunities provided.

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APPENDIX

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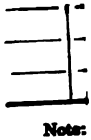
Table G. Proposed Froebel School Program



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36				M		
37	Read. and Sp.	Hist.	316	35	Arith.	316
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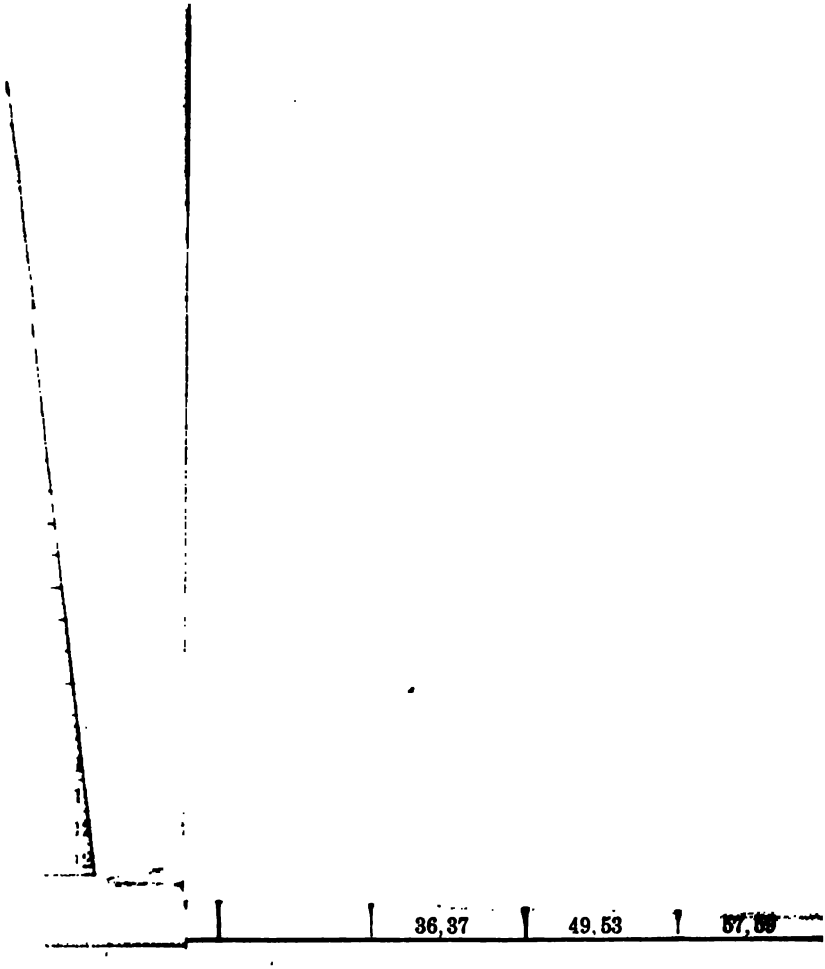

CLASSES 25 to 48

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	17′			Geography	17′
		Lit., Read. ½	27′	H. and G.	
		Writing ½		Reading	20′

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